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P^2NBC^2

Physiological and Psychological Effects of the NBC Environment and Sustained Operations on Systems in Combat

REPORT

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Literature Research Compendium

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30 December 1988

United States Army Chemical School
Fort McClellan, Alabama

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The purpose of this review was to continue gathering available literature applicable to the Physiological and Psychological Effects of Nuclear/Biological/Chemical and Extended Operations on Crew (P^{2}NBC^2) performance. Over 1300 abstracts were reviewed and approximately 500 of those were found which contained applicable information. The review is presented by year and an index of the bibliographic citations is also provided.

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REVIEW OF FOUR YEARS OF LITERATURE (1985, 1986, 1987 and 1988) FOR THE PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF THE NUCLEAR/BIOLOGICAL/CHEMICAL AND EXTENDED OPERATIONS ON SOLDIER PERFORMANCE PROGRAM

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DECEMBER 30, 1988

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UNITED STATES ARMY
CHEMICAL SCHOOL
FT. McCLELLAN, AL 36205

Preface

This report presents a review of the existing available literature prepared in the last four years (1985, 1986, 1987, and 1988) on the physiological and psychological effects of the nuclear/biological/chemical (NBC) environment and extended combat operations on soldier performance. This report is an update to the P^2NBC^2 Addendum to the CANE Literature Research Compendium. This report was prepared by Battelle Columbus Division under the support and guidance of Major R. Pence at the U.S. Army Chemical School, Ft. McClellan, AL 36205.

The work was performed in support of Task 113 of the Defense Logistics Agency (DLA) contract number 900-86-C-2045 for the Chemical Warfare/Chemical-Biological Defense Information Analysis Center (CBIAC), Edgewood, Maryland.

Table of Contents

Introduction

Purpose. The purpose of this literature review was to continue gathering available literature applicable to the Physiological and Psychological Effects of Nuclear/Biological/Chemical and Extended Operations on Crews (P^2NBC^2) program.

Background. The P^2NBC^2 program has evolved over a five year period. Its inception was at the Armor Center at Fort Knox, Kentucky. It was moved to the US Army Chemical School in 1987 and will be monitored from the Chemical School until 1991. A review of literature available up to June of 1985 was provided in the "P^2NBC^2 Addendum to the CANE Literature Research Compendium" prepared by ORI, Inc. for the U.S. Army Armor & Engineer Board. This review is a continuation of that work, covering literature published from January, 1985 to June, 1988. There is some overlap between the two documents, but this is to ensure that as many articles as possible published between January and June 1985 are documented.

Approach. The approach to preparing this literature review was to review the abstracts from large bibliographical data bases. This led to the review of over 1300 abstracts of documents published over the last four years which refer to the topic of NBC. The abstracts were reviewed by Battelle and those titles believed to contain applicable data were further screened to ensure their applicability to the P^2NBC^2 program. Approximately 500 documents were appropriate for inclusion in this review. Differences between this review and the addendum prepared by ORI, Inc. are:

a. The citations in this review are organized by year of publication rather than by category.
b. Documents not applicable to the P^2NBC^2 program are not cited in this review.
c. This review does not include the type and category of the documents.

d. This review includes an alphabetized bibliographic index of all the documents cited.

Organization of Citations

The citations are presented using the following format:

Title:	The full title, as it appears on the document.
Data Source No:	The document number from the originating organization and/or the Defense Technical Information Center (DTIC) number, when available.
Author:	All authors listed on the document.
Originating Organization:	The contracted organization and the organization for which the document was prepared.
Classification:	The security classification of the document.
Document Date:	The date the article or document was published.
Comments:	A summary review of the document.

Bibliographic Index Organization

The bibliographic index is an alphabetical listing of the documents by last name of first author. If no author name was given, then the citation is by title or originating organization. The index lists all of the titles, organizations and publication dates of the documents cited in the body of this report.

Title Citation Organization

Each title is provided in a listing. The listing is alphabetized by first word. If the first word is an article (A, An, The, etc.) the title is alphabetized by the first word other than the article.

LITERATURE REVIEW FOR 1985

TITLE: A SYSTEMATIC MATHEMATICAL APPROACH FOR THE SELECTION OF CHEMICAL WARFARE AGENT SIMULANTS
DATA SOURCE NO: CRDC-TR-84044 ADB089651
AUTHOR: G.R. FAMINI, P.A. COON
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/01/01

COMMENTS: THIS DOCUMENT COVERS THE DEVELOPMENT OF A SYSTEMATIC MATHEMATICAL MODEL FOR SELECTING BETTER CHEMICAL WARFARE AGENT SIMULANTS. UTILIZING HALCAP AND ARTHUR, ANY SIMULANT CAN BE RATED, BASED ON ANY COMBINATION OF PHYSICAL PROPERTIES. EXAMPLE RUNS ARE DOCUMENTED, USING THE CHEMICAL AGENT DATA CENTER AS THE PRIMARY DATA BASE.

TITLE: M113 VEHICLE, COLLECTIVE PROTECTION/MICROCOOLING STUDIES
DATA SOURCE NO: CRDC-CR-84121
AUTHOR: P.W. SEAL, D.J. CHENEVERT
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, NATIONAL SPACE TECHNOLOGY LABORATORIES, MS FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/02/01

COMMENTS: THIS REPORT SUMMARIZES THE INVESTIGATIONS, CONCLUSIONS, AND RECOMMENDATIONS TO PROVIDE NBC COLLECTIVE PROTECTION WITH MICROCOOLING FOR THE M113 APC COMBAT VEHICLE. THE OPERATIONAL REQUIREMENTS OF THE VEHICLE, NBC SYSTEMS, AND MICROCOOLING SYSTEMS ARE ANALYZED. THESE STUDIES RESULT IN THE DEVELOPMENT OF FOUR CONCEPTUAL INTEGRATION DESIGNS, FOLLOWED BY A TECHNICAL EVALUATION OF EACH DESIGN CONCEPT, FROM WHICH THE MOST APPLICABLE DESIGN IS SELECTED.

TITLE: A COMPUTER MODELING PROGRAM FOR ESTIMATION OF PERFORMANCE DEGRADATION FROM SUBLETHAL EFFECTS OF CHEMICAL AGENTS
DATA SOURCE NO: CRDC-TR-84053 ADB090870
AUTHOR: R.F. MCHUGH, R.J. MIODUSZEWSKI, A.P. MICKIEWICZ, J.H. THOMPSON, J.W. JAMESON, P.A. BROOME, E.G. DAVIS
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/02/01

COMMENTS: THIS REPORT CONCERNS A COMPUTER MODEL DEVELOPED FOR ESTIMATING THE EFFECT OF CHEMICAL AGENT-INDUCED SYMPTOMS ON THE

PERFORMANCE OF SPECIFIED MILITARY TASKS AND THE EFFECTS OF CUMULATIVE SYMPTOMS ON MISSION DEGRADATION. THE DATA USED TO DEVELOP AND TEST THE MODEL ARE ESTIMATES OF HUMAN RESPONSES TO VX AND GB,(SARIN) BY THE INHALATION AND INTRAMUSCULAR ROUTES OF EXPOSURE. INCLUDED IS SAMPLE COMPUTER MODEL OUTPUT.

TITLE: AGENT TESTING OF M1 AND M1A1 BAGS FOR USE IN ENTRY/EXIT OF NBC SHELTERS
DATA SOURCE NO: CRDC-CR-85003 ADB090869
AUTHOR: G.G. OUTTERSON, R.K. SMITH, J.D. BROWNING, S.J. COLDIRON
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/01

COMMENTS: THIS EXPERIMENT TESTED WHETHER M1 OR M1A1 WATERPROOFING BAGS USED AS M17A1 MASK CONTAINERS IN COLLECTIVE PROTECTION SHELTERS WOULD REDUCE OFF-GASING OF MUSTARD (HD) AND THICKENED SOMAN (TGD) AGENTS IN THE SHELTERS. INCLUDED ARE TABULATED RESULTS FROM A MATRIX OF EXPERIMENTS WHICH VARIED BAG TYPE, AGENT TYPE, AGENT EXPOSURE TIME, DECONTAMINATION METHOD, AND SITE OF CONTAMINATION ON THE MASK.

TITLE: TOXICITY OF ANTICHOLINESTERASES: INTERACTIONS OF PYRIDOSTIGMINE AND PHYSOSTIGMINE WITH SOMAN
DATA SOURCE NO: ADA151543
AUTHOR: L. HARRIS, W. LENNOX, B. TALBOT, D. ANDERSON, D.SWANSON
ORIGINATING ORG: US ARMY MEDICAL RESEARCH INSTITUTE OF CHEMICAL DEFENSE (MRICD), ABERDEEN PROVING GROUND, MD.
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/03/19

COMMENTS: THE OBJECTIVE OF THIS STUDY WAS TO PROVIDE INFORMATION ON THE POSSIBLE INTERACTIONS OF PHYSOSTIGMINE OR PYRIDOSTIGMINE AND SOMAN (GD) USING MOTOR PERFORMANCE OF RATS AS THE DEPENDENT VARIABLE. A FACTORIAL DESIGN WAS USED TO DETERMINE THE INTERACTION EFFECT OF SOMAN (GD) WITH PHYSOSTIGMINE AND SOMAN (GD) AND WITH PYRIDOSTIGMINE. NO SIGNIFICANT INTERACTION WAS FOUND BETWEEN THE PRETREATMENT DRUGS AND THE TWO CHEMICAL AGENTS. THE EFFECTS OF THE PRETREATMENT DRUG AND SOMAN (GD) WERE ADDITIVE.

TITLE: KIT TESTS FOR RAPID DETECTION OF VIRUS AND VIABLE BACTERIA AND SPORE/NONSPORE DETERMINATION
DATA SOURCE NO: CRDC-CR-85022
AUTHOR: R.H. MOYER, D.J. SIBBETT, H.R. TRIBBLE
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD; CONTRACTOR: GEOMET TECHNOLOGIES, INCORPORATED, ROCKVILLE, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS DOCUMENT DESCRIBES THE DEVELOPMENT AND TESTING OF REAGENTS, DISPOSABLE FILTER ASSEMBLIES, AND TEMPERATURE-CONTROLLED ENCLOSURES FOR RAPID DETECTION OF VIABLE BACTERIA AND BACTERIAL SPORES. INCLUDED ARE DETAILS OF METHODS AND MATERIALS, TEST PROCEDURES, AND TEST RESULTS.

TITLE: XM40 MASK DEVELOPMENT ENHANCEMENT: FIT VALIDATION -ULTRASONIC CONCEPT DEVELOPMENT
DATA SOURCE NO: CRDC-CR-85015
AUTHOR: W.H. MINK, D.W. FOLSOM, M.J. KOENIG
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS REPORT DISCUSSES THE INVESTIGATION OF ULTRASONICS AS A MEANS FOR FIT VALIDATION OF THE US ARMY'S XM40 PROTECTIVE MASK BEING DEVELOPED TO PROVIDE PROTECTION AGAINST CHEMICAL/BIOLOGICAL AGENTS. INCLUDED ARE THE RESULTS OF TESTS CONDUCTED WITH ACOUSTIC PRESSURE SENSING AND ACOUSTIC POWER (INTENSITY) SENSING.

TITLE: ENTRY/EXIT PROCEDURES WITHOUT A PROTECTIVE ENTRANCE
DATA SOURCE NO: CRDC-SP-84027, ADB092810
AUTHOR: D.R. BENTON, J.G. GORRELL
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/04/01

COMMENTS: THIS REPORT PROVIDES THE RESULTS OF A FEASIBILITY STUDY ON MAINTAINING AN ENTRY/EXIT CAPABILITY FOR A COLLECTIVE PROTECTION EQUIPMENT-PROTECTED VAN/SHELTER WITHOUT A PROTECTIVE ENTRANCE IN A CHEMICAL ENVIRONMENT. DMMP WAS USED AS THE CHEMICAL AGENT SIMULANT.

INCLUDED ARE RECOMMENDED ENTRY/EXIT PROCEDURES FOR THE COLLECTIVE PROTECTION EQUIPMENT-PROTECTED SHELTER WITHOUT PROTECTIVE ENTRANCE.

TITLE: PHYSIOLOGICAL DIFFERENCES BETWEEN MEN AND WOMEN IN EXERCISE-HEAT TOLERANCE AND HEAT ACCLIMATION
DATA SOURCE NO: M20/85, ADA152048
AUTHOR: K.B. PANDOLF, M.N. SAWKA, Y. SHAPIRO
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE, NATICK MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/01

COMMENTS: STUDY OF MEN AND WOMEN OF COMPARABLE FITNESS. EASY TO READ DESCRIPTION OF STUDY AND SUMMARY OF PREVIOUS STUDIES. CONCLUSION: MEN AND WOMEN OF EQUAL FITNESS, SURFACE AREA TO MASS RATIO, AND BODY FAT DO NOT DIFFER MUCH IN HEAT TOLERANCE OR RATE OF ACCLIMATIZATION. MEN'S CORE TEMPERATURE AND HEART RATE ARE SLIGHTLY LOWER IN A HOT-DRY ENVIRONMENT. WOMEN'S SWEAT LOSS AND CORE TEMPERATURE ARE LOWER IN A HOT-WET ENVIRONMENT.

TITLE: ADVANCED DEVELOPMENT OF SIMPLIFIED COLLECTIVE PROTECTION EQUIPMENT (SCPE) FOR FIELD SHELTERS, XM20
DATA SOURCE NO: CRDC-CR-84128
AUTHOR: J. ESTES, J. CARTA, J. LAMBRIGHT, R. ANDERSON, T. EATON, W. IUSLEY, R. SARSON
ORIGINATING ORG: BRUNSWICK CORPORATION, DELAND, FL FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/01

COMMENTS: THIS REPORT CONCERNS THE DESIGN, FABRICATION, TESTING, AND EVALUATION OF 50 SIMPLIFIED COLLECTIVE PROTECTION EQUIPMENT (SCPE) UNITS FOR FIELD SHELTERS. INCLUDED ARE TEST RESULTS AND INFORMATION ABOUT PERFORMANCE, PRODUCTIBILITY, SYSTEM SAFETY, RELIABILITY, MAINTAINABILITY, AND PROJECTED PRODUCTION COST OF SCPE.

TITLE: MINIMUM OVERPRESSURE TESTING OF THE M-3 CAVALRY FIGHTING VEHICLE
DATA SOURCE NO: CRDC-SP-84026, ADB092089
AUTHOR: G.T. BARTLETT
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED

DOCUMENT DATE: 85/03/01

COMMENTS: THIS REPORT DISCUSSES TESTS ON THE M-3 CAVALRY FIGHTING VEHICLE TO DETERMINE THE MINIMUM OVERPRESSURE NECESSARY TO PREVENT INFILTRATION, ALSO DETERMINED WERE THE PERSONNEL COMPARTMENT VOLUME, THE ZERO OVERPRESSURE INFILTRATIO", THE FLOW VERSUS OVERPRESSURE, AND THE POSITIVE PRESSURE INFILTRATION. INCLUDED ARE SUMMARIZED RESULTS OF MINIMUM OVERPRESSURE TES.ING FOR SEVERAL OTHER COMBAT VEHICLES.

TITLE: A STUDY OF THE EVAPORATION AND DESORPTION RATES OF CHEMICAL AGENTS FROM VARIOUS TYPES OF SURFACES
DATA SOURCE NO: CRDC-SP-84030, ADB092771
AUTHOR: A.S. MCGRATH, R.S. LINDSAY, J.H. THOMPSON
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/04/01

COMMENTS: THIS PAPER DISCUSSES AN EVAPORATION/DESORPTION STUDY WHICH WAS PERFORMED TO DETERMINE DIFFERENCES BETWEEN VARIOUS TYPES OF SURFACES, AND THE RESIDUAL HAZARDS ASSOCIATED WITH EACH AFTER CONTAMINATION. INCLUDED ARE NUMEROUS TABULATIONS AND GRAPHS. REPORT CONCLUDES THAT MORE WORK IS NEEDED BEFORE DOCTRINE CAN BE ESTABLISHED.

TITLE: TRAINING CHEMICAL WARFARE DEFENSE PROGRAM, TAC REG 50-17
ORIGINATING ORG: HEADQUARTERS TACTICAL AIR COMMAND, LANGLEY AFB, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/01/21

COMMENTS: THIS REGULATION EXPLAINS CURRENT DIRECTIVES FOR TRAINING TAC UNITS IN CHEMICAL WARFARE DEFENSES. AREAS COVERED INCLUDE: ALARM AND RESPONSE, COLLECTIVE PROTECTION, CONTAMINATION AVOIDANCE, DECONTAMINATION, CWD EQUIPMENT, TRAINING, ATTACK RESPONSE EXERCISES, CWD INSPECTIONS, DISASTER PREPAREDNESS MOBILITY TEAMS (DPMT) AND DEPLOYABLE SHELTER MANAGEMENT TEAMS (DSMT), AND COLD WEATHER OPERATIONS. CHARTS CONTAINING CHEMICAL AGENT CHARACTERISTICS, THERMAL STRESS, PROCESSING PROCEDURES (GROUND SUPPORT, AIRCREW, AND EXPEDIENT) AND FIGURES OF SHELTERS ARE PRESENTED.

TITLE: CHEMICAL WARFARE STUDY: SUMMARY REPORT
DATA SOURCE NO: IDA-P-1820, ADA151560
AUTHOR: F.J. KROESEN

ORIGINATING ORG: BURDESHAW ASSOCIATES, BETHESDA, MD FOR THE INSTITUTE FOR DEFENSE ANALYSIS, ALEXANDRIA, VA, WASHINGTON DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/01

COMMENTS: THIS REPORT DESCRIBES A STUDY ACCOMPLISHED BY 21 MILITARY OFFICERS OF ONE- TO FIVE-STAR RANK, WHICH COMPILED A COMPREHENSIVE ASSESSMENT OF THE PROBABLE NATURE OF A CHEMICAL CONFLICT. THE OFFICERS REPRESENTED ALL THE US ARMED SERVICES AND ONE OTHER NATO NATION, AND PROVIDED THE COLLECTIVE MILITARY KNOWLEDGE, EXPERIENCE, AND JUDGEMENT OF THIS GROUP REGARDING CHEMICAL WARFARE. THIS IS A CONDENSED UNCLASSIFIED VERSION OF THE 1984 REPORT. THIS REPORT IS AN EXCELLENT SOURCE OF QUOTABLE, UNCLASSIFIED STATEMENTS REGARDING CONCERN FOR USE OF, PREPARATION AGAINST, AND CURRENT STATUS TO OPERATE IN A CHEMICAL ATTACK.

TITLE: ANOMALIES IN THEORIES AND THERAPY OF INTOXICATION BY POTENT ORGANOPHOSPHORUS ANTICHOLINESTERASE COMPOUNDS
DATA SOURCE NO: USABML-SP-81-003, ADA150353
AUTHOR: R.I. ELLIN
ORIGINATING ORG: US ARMY BIOMEDICAL LABORATORY (BML), EDGEWOOD ARSENAL, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/12

COMMENTS: THIS DOCUMENT IS A BRIEF LITERATURE REVIEW OF EXISTING RESEARCH ON VARIOUS AREAS OF ORGANOPHOSPHORUS COMPOUNDS. THE AREAS COVERED ARE: 1) METABOLISM OF ORGANOPHOSPHORUS COMPOUNDS, 2) ORGANOPHOSPHORUS AGENTS AND SPECIES VARIATION, 3) BIOLOGICAL CHANGES OTHER THAN ACETYLCHOLINESTERASE INHIBITION CAUSED BY ORGANOPHOSPHORUS COMPOUNDS, 4) ANOMOLIES IN THEORIES OF ORGANOPHOSPHORUS INHIBITED OF ANTICHOLINESTERASE, 5) ANOMOLIES IN THEORIES OF OXIME THERAPY, 6) AGING AND REACTIVATION OF ORGANOPHOSPHORUS INHIBITED CHOLINESTERASE.

TITLE: EFFECTS OF XM-40 CHEMICAL PROTECTIVE MASK ON REAL-EAR ATTENUATION AND SPEECH INTELLIGIBILITY CHARACTERISTICS OF THE SPH-4 AVIATOR HELMET
DATA SOUURCE NO: USAARL-85-2, ADA153848
AUTHOR: W.R. NELSON, B.T. MOZO
ORIGINATING ORG: SENSORY RESEARCH DIVISION, FORT RUCKER, AL FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FREDERICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/01

COMMENTS: THIS STUDY INVESTIGATED THE EFFECTS OF THREE PROTOTYPE VERSIONS OF THE XM-40 CHEMICAL PROTECTIVE (CP) MASK ON THE HEARING PROTECTIVE AND COMMUNICATIVE FUNCTIONS OF THE SPH-4 AVIATOR

HELMET. BASED ON THE RESULTS OF THIS STUDY, IT IS CONCLUDED THAT WEARING THE XM-40 CP MASK WITH THE SPH-4 AVIATOR HELMET COMPROMISES NOISE ATTENUATION AT 2 KHZ, 6.3 KHZ, AND 8 KHZ. WEARING THE XM-40 MASK SIGNIFICANTLY DECREASED THE ABILITY OF A LISTENER TO UNDERSTAND SPEECH COMMUNICATION RECEIVED VIA THE SPH-4 HELMET. IT IS RECOMMENDED THAT FURTHER EFFORTS BE MADE TO IMPROVE CP MASK COMPATIBILITY WITH THE SPH-4 HELMET.

TITLE: CURRENT APPROACHES FOR THE BIOPHYSICAL AND PHYSIOLOGICAL EVALUATION OF COMBAT CLOTHING FOR ENVIRONMENTAL EXTREMES
DATA SOURCE NO: M18/85, ADA151012
AUTHOR: K.B. PANDOLF, R.R. GONZALEZ, M.N. SAWKA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (ARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/01

COMMENTS: THE APPROACH INVOLVES: 1) ASSESSMENT OF HEAT TRANSFER CHARACTERISTICS OF CLOTHING, 2) QUANTIFICATION OF EFFECTS OF WEIGHT AND PLACEMENT OF EXTERNAL LOADS, SPEED, AND TERRAIN TO CALCULATE ENERGY RELEASE, 3) PREDICTIONS OF PHYSIOLOGICAL RESPONSES WITH TIME AND ALTERATIONS OF THE SOLDIER OR OF HIS MISSION TO MINIMIZE OPERATIONAL LIMITATIONS. A COMBINATION OF WORK/REST CYCLES, ACTIVITY LEVEL AND ENVIRONMENT ARE USED TO CALCULATE THE PRODUCTION OF OPERATIONAL PROBLEMS. MEASUREMENTS ARE OBTAINED ON A COPPER MANIKIN FOR COOLING AND SWEATING. PHYSIOLOGICAL MEASURES ARE OBTAINED FROM VOLUNTEERS. NO CALCULATIONS ARE GIVEN.

TITLE: IMPLICATIONS OF PRESENT KNOWLEDGE AND PAST EXPERIENCE FOR A POSSIBLE FUTURE CHEMICAL/CONVENTIONAL CONFLICT
DATA SOURCE NO: ADA153656
AUTHOR: G.M. HAMMERMAN
ORIGINATING ORG: HISTORICAL EVALUATION AND RESEARCH ORGANIZATION, FAIRFAX, VA FOR OFFICE OF THE SECRETARY OF DEFENSE, ALEXANDRIA, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/01/01

COMMENTS: AN EXCELLENT PAPER ON THE NATURE OF FUTURE CHEMICAL/CONVENTIONAL WAR. MAIN PORTION OF THE PAPER IS AN IN-PROCESS DISCUSSION OF SIX INDIVIDUALS WITH EXTENSIVE EXPERIENCE IN CHEMICAL WARFARE FOR THEIR RESPECTIVE FIELDS, (2 WERE HISTORIANS, 2 WERE SCIENTISTS, AND 3 WERE SOVIETOLOGISTS). TOPICS INCLUDED REVOLUTIONARY ADVANCEMENTS IN CHEMICAL WARFARE AND HOW AND WHEN SOVIETS WOULD USE CHEMICAL AGENTS. INCLUDED AS APPENDICES ARE PAPERS WRITTEN BY THE SIX PARTICIPANTS ON CHEMICAL WARFARE FROM THEIR EXPERTISE.

TITLE: AIR LEAKAGE ASSESSMENT OF M113A2 ARMORED PERSONNEL CARRIER (APC)
DATA SOURCE NO: CRDC-TR-84109
AUTHOR: D.W. BAYLOR
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/07/01

COMMENTS: REPORT COVERED A PROJECT TO DETERMINE THE LEAKAGE OF AN M113A2 APC (ARMORED PERSONNEL CARRIER). REPORT INDICATES THAT TOTAL LEAKAGE WAS 278.0 CUBIC FEET PER MINUTE AT A CREW COMPARTMENT PRESSURE OF 1.5 INCHES OF WATER. PRESSURE MEASUREMENTS OF ENGINE/CREW COMPARTMENT SHOWED A NEGATIVE PRESSURE OF .8 INCHES WHILE ENGINE IS RUNNING AT 2000 RPM. RECOMMENDATION IS MADE TO REDUCE LEAKAGE BY SEALING SEVERAL LEAKAGE AREAS.

TITLE: PREDICTING CHEMICAL AGENT PERSISTENCE FROM NOMOGRAPHS
DATA SOURCE NO: AFAMRL-TR-85-026, ADB096300
AUTHOR: J.G. JENSEN, R.V. RUDOFSKI, K.A. RAINES, J.E. FELT, C.M. DEMBECK, G.M. JAMES
ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR US AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY (AFAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/01

COMMENTS: REPORT DESCRIBES THE DEVELOPMENT OF CHEMICAL AGENT PERSISTENCE NOMOGRAPHS FOR FIELD USE. NOMOGRAPHS FOR AC (HYDROGEN CYANIDE), GB (SARIN), GD (SOMAN), HD (MUSTARD), VL, AND VX ARE PROVIDED. NOMOGRAPHS PREDICT THE TIME AT WHICH 90 PERCENT OF THE LIQUID AGENT ON THE GROUND HAS EVAPORATED. DATA ON CORRECTION FACTORS AND DROP SIZE DISTRIBUTIONS ARE ALSO GIVEN.

TITLE: DECONTAMINATION AND DISPOSAL OF CHEMICAL AGENTS
DATA SOURCE NO: FSTC-HT-947-84, ADB090306
AUTHOR: K. LOHS, D. MARTINETZ
ORIGINATING ORG: FOREIGN SCIENCE AND TECHNOLOGY CENTER (FSTC), CHARLOTTESVILLE, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/01/01

COMMENTS: THIS IS A TRANSLATION OF A GERMAN DOCUMENT. THE DOCUMENT PRESENTS BASIC POSSIBILITIES FOR DISPOSAL OF CHEMICAL WARFARE MATERIALS; SPECIAL ASPECTS OF DISPOSAL OF CHEMICAL MATERIALS IN MUNITIONS; DETOXIFICATION METHODS AND AGENTS; AND PROTECTION OF HUMANS

AND THE ENVIRONMENT DURING DECONTAMINATION OPERATIONS OF MILITARY CHEMICALS. TABLES AND FIGURES ARE PRESENTED TO SUPPORT EACH TOPIC AREA.

TITLE: EFFECT OF WEARING CHEMICAL PROTECTIVE CLOTHING IN THE HEAT ON SIGNAL DETECTION OVER THE VISUAL FIELD
DATA SOURCE NO: USARIEM-M-16//85, ADA150995
AUTHOR: J.L. KOBRICK, L.A. SLEEPER
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/12

COMMENTS: THIS DOCUMENT EXAMINES THE EFFECTS OF HEAT AND PERIPHERAL LOCATION OF A VISUAL STIMULUS ON THE ABILITY OF A SUBJECT TO DETECT A VISUAL STIMULUS WITH AND WITHOUT THE ARMY'S CHEMICAL PROTECTIVE CLOTHING. RESULTS SHOW A HIGHLY SIGNIFICANT MAIN EFFECT FOR LOCATION OF THE STIMULUS. ADDITIONALLY, THE HEAT CONDITION AND HEAT PLUS CHEMICAL CLOTHING HAD A SIGNIFICANT EFFECT ON VISUAL RESPONSE TIME. THE RESULTS INDICATE A SERIOUS LIMITATION TO FUNCTIONAL VISION BY THE CHEMICAL CLOTHING.

TITLE: A GUIDE TO THE PREDICTION OF SECONDARY HAZARD FROM BIOLOGICAL AEROSOL
DATA SOURCE NO: CRDC-TR-84082, ADC037572
AUTHOR: D.L. WU
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/07/01

COMMENTS: RESULTS OF A LITERATURE SEARCH FOR MILITARY INFORMATION ON BIOLOGICAL SECONDARY AEROSOL HAZARD. SIMPLE MATHEMATICAL MODELS ARE GIVEN TO PREDICT CONCENTRATION, DOSE, AND POPULATION CASUALTIES. PERCENT POPULATION CASUALTIES ARE TABULATED IN MATRIX FORM FOR VARIOUS DEGREES OF INITIAL GROUND CONTAMINATION, ENTRY TIME, EXPOSURE TIME, AND THREE CATEGORIES OF BACTERIAL AGENTS.

TITLE: FINAL REPORT DEVELOPMENT TEST II (PROTOTYPE QUALIFICATION TEST-GOVERNMENT) (TROPIC ENVIRONMENT PHASE) OF THE M1E1 TANK SYSTEM
DATA SOURCE NO: USATTC-R-850302, ADB094594
AUTHOR: S.L. CARPENTER, B.R. DAVIS, R.J. GORAK, B.F. SINIGAGLIO

ORIGINATING ORG: US ARMY TROPIC TEST CENTER (USATTC), APO MIAMI, FL FOR US ARMY TEST AND EVALUATION COMMAND, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/01

COMMENTS: THIS IS A FINAL REPORT OF THE TROPICAL ENVIRONMENT PROTOTYPE QUALIFICATION TEST OF THE M1E1 TANK SYSTEM. IT CONTAINS TEST DESCRIPTIONS AND PROBLEMS FOUND. ALSO INCLUDED ARE: ENVIRONMENTAL CONDITIONS DATA, NBC (NUCLEAR, BIOLOGICAL, CHEMICAL) SYSTEM DATA, MOPP 4 LEVEL OPERATION DATA, AND HUMAN FACTORS QUESTIONAIRE RESPONSES BY THE CREW.

TITLE: AIRCRAFT COMBAT DAMAGE REPAIR ESTIMATING PROCEDURES, PHASE III - DEMONSTRATION OF REPAIR TIME ESTIMATOR
DATA SOURCE NO: ASD-TR-85-5005
AUTHOR: J.J. FLOWERS, P.H. KOVATCH, K.M. COOK
ORIGINATING ORG: LTV AEROSPACE AND DEFENSE COMPANY, DALLAS, TX FOR AERONAUTICAL SYSTEMS DIVISION (ASD/XRM), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/01

COMMENTS: FINAL REPORT AND FOLLOW-ON TO ASD-TR-82-5018, AND ASD-TR-83-5011 (SAME BASIC TITLE). VERY BRIEFLY DISCUSSES TASK TIME DEGRADATION BUT GIVES NO DETAILS ON HOW DATA WAS DERIVED. EXPANDS THE DATA ORIGINALLY GIVEN ON A-10A/F-4E/F-15A/F-16A TO INCLUDE F-111E/C-130E C-130E/B-1B/AV-8B/HH-60D. SOME DATA ON F-4E AND A-10A WERE UPDATED AND COMPARED TO PHASE II (ASD-TR-83-5011).

TITLE: BINOCULAR SCANNING PERFORMANCE FOR SOLDIERS WEARING PROTECTIVE MASKS - II
DATA SOURCE NO: TM-14-85, ADB096653
AUTHOR: D.M. HARRAH
ORIGINATING ORG: US ARMY HUMAN ENGINEERING LABORATORY, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/09/01

COMMENTS: A STUDY WAS CONDUCTED TO DETERMINE THE TIME REQUIRED TO SCAN A GIVEN AREA USING M19 BINOCULARS WITH EACH OF THREE PROTOTYPE M40 PROTECTIVE MASKS. THE RESULTS SUGGEST THAT THE FIELD OF VIEW THROUGH THE BINOCULARS DECREASES LINEARLY WITH RESPECT TO THE DISTANCE BETWEEN THE EYE AND THE MASK LENS.

TITLE: INTRA-THEATER INTELLIGENCE COMMUNICATIONS NETWORK (IINCOMNET)
ORIGINATING ORG: HEADQUARTERS USAFE/INY
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/09/22

COMMENTS: THIS DOCUMENT PRESENTS THE PRELIMINARY SYSTEM OPERATIONAL CONCEPT FOR THE USAFE INTRA-THEATER INTELLIGENCE COMMUNICATIONS NETWORK (IINCOMNET). IINCOMNET IS PROPOSED AS A SUBNET OF THE DEFENSE DATA NETWORK (DDN) AND IS TO PROVIDE SURVIVABLE, HIGH CAPACITY DATA CONNECTIVITY AT THE SECRET LEVEL AMONG USAFE INTELLIGENCE PRODUCTION FACILITIES AND USAFE WINGS AND SQUADRONS AT MAIN AND COLLOCATED OPERATING BASES, NATO COMMAND AND CONTROL CENTERS, SELECTED SENSOR AND COLLECTION FACILITIES, MOBILE INTELLIGENCE COLLECTION TEAMS, AND SELECTED US ARMY, NAVY AND MARINE UNITS.

TITLE: INTEGRATED BATTLEFIELD INTERACTIVE MODEL (INBATIM) PROGRAM DESCRIPTION, PROGRAM MAINTENANCE MANUAL
DATA SOURCE NO: CSM-MM-295-85-VOL-1-PART-1, ADB092852
AUTHOR: J. SHERBY
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, FALLS CHURCH, VA, FOR JOINT DATA SYSTEM SUPPORT CENTER, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/02/15

COMMENTS: THIS MAINTENANCE MANUAL DESCRIBES THE PROCEDURES AND REQUIREMENTS FOR MAINTENANCE OF THE INTEGRATED BATTLEFIELD INTERACTIVE MODEL (INBATIM). THE MODEL IS DETERMINISTIC AND SIMULATES CONVENTIONAL AND CHEMICAL WARFARE AT THE THEATER LEVEL. THE MODEL DETERMINES DAILY AND CUMULATIVE LOSSES OF GROUND WEAPONS, AIRCRAFT, AND PERSONNEL BASED ON GROUND AND AIR ATTACKS WITH BOTH CHEMICAL AND CONVENTIONAL WEAPONS.

TITLE: INTEGRATED BATTLEFIELD INTERACTIVE MODEL (INBATIM) PROGRAM DESCRIPTION, PROGRAM MAINTENANCE MANUAL
DATA SOURCE NO: CSM-MM-295-85-VOL-1-PART-2, ADB092853
AUTHOR: J. SHERBY
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, FALLS CHURCH, VA, FOR JOINT DATA SYSTEM SUPPORT CENTER, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 35/02/15

COMMENTS: THIS MAINTENANCE MANUAL DESCRIBES THE PROCEDURES AND REQUIREMENTS FOR MAINTENANCE OF THE INTEGRATED BATTLEFIELD INTERACTIVE MODEL (INBATIM). THE MODEL IS DETERMINISTIC AND SIMULATES CONVENTIONAL AND CHEMICAL WARFARE AT THE THEATER LEVEL. THE MODEL

DETERMINES DAILY AND CUMULATIVE LOSSES OF GROUND WEAPONS, AIRCRAFT, AND PERSONNEL BASED ON GROUND AND AIR ATTACKS WITH BOTH CHEMICAL AND CONVENTIONAL WEAPONS.

TITLE: SIMULANT BIOLOGICAL AEROSOL LEAKAGE TEST OF CANDIDATE XM30 MASKS
DATA SOURCE NO: CRDC-TR-84111, ADB096952
AUTHOR: W.K. WONG, C.E. MICK, J.M. FERRITER
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/10/01

COMMENTS: DOCUMENT EXAMINES THE SIMULANT BIOLOGICAL AEROSOL PENETRATION RATE OF THE M17A1 MASK AND THE XM30 MASK. SUBJECTS WERE EITHER ACTIVE OR SEDENTARY DURING THE TESTING. THE TEST SUBJECTS EXPERIENCED A HIGHER PERCENTAGE OF RESPIRATORY LEAKAGE WHILE ACTIVE THAN WHEN THEY WERE SEDENTARY. THE OVERALL MASK LEAKAGE VALUES INDICATE NO SIGNIFICANT VARIATION AMONG THE MASKS.

TITLE: AIRCRAFT OPERATIONS IN A TOXIC ENVIRONMENT (AOTE), SUBTEST 6, HAZARDS ASSOCIATED WITH TACTICAL AIRCRAFT FLYING THROUGH A CHEMICAL AGENT SIMULANT VAPOR CLOUD
DATA SOURCE NO: ADC037505
AUTHOR: W.T. TAYLOR, A.B. BUXTON
ORIGINATING ORG: DUGWAY PROVING GROUND (DPG), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 85/04/01

COMMENTS: REPORT OF TESTS WHERE DOSAGE LEVELS INSIDE A COCKPIT WERE RECORDED IN AN A-4 AIRCRAFT FLYING DIRECTLY BEHIND ANOTHER A-4 AIRCRAFT THAT WAS DELIVERING SIMULANT FROM AN AERO-14B SPRAY TANK. LIQUID SIMULANT LEVELS IMPACTING ON THE TRAILING AIRCRAFT WERE ALSO RECORDED.

TITLE: COLD WEATHER COMBAT: ANALOGIES TO CHEMICAL COMBAT
DATA SOURCE NO: IDA-P-1863, ADB095941
AUTHOR: G. HAMMERMAN, D. APKER, P. MARTELL, L. PETTERSON
ORIGINATING ORG: DATA MEMORY SYSTEMS, INC., FAIRFAX, VA FOR INSTITUTE FOR DEFENSE ANALYSES, ALEXANDRIA, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/01

COMMENTS: COLD WEATHER COMBAT IS USED AS AN ANALOGY TO CHEMICAL COMBAT. ANALOGIES WERE MADE IN THE AREAS SUCH AS IMPORTANCE OF CLOTHING, MOBILITY PROBLEMS, FATIGUE, AND LEADERSHIP REQUIREMENTS. SUGGESTIONS TO ACCOMODATE FURTHER HOSTILE CONDITIONS INCLUDE: ACCLIMATIZATION, PROPER EQUIPMENT, AND GOOD LEADERSHIP AND PLANNING.

TITLE: PLASMA HORMONAL RESPONSES AT GRADED HYPOHYDRATION LEVELS DURING EXERCISE/HEAT STRESS
DATA SOURCE NO: ADA153681
AUTHOR: R.P. FRANCESCONI, M.N. SAWKA, K.B. PANDOLF, R.W. HUBBARD, A.J. YOUNG, S. MUZA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/03/28

COMMENTS: PAPER PRESENTS METHODS AND RESULTS OF A STUDY TO DETERMINE THE EFFECTS OF HEAT STRESS ON PLASMA HORMONAL RESPONSES. SUBJECTS PARTICIPATED IN HEAT STRESS TESTS AT VARIOUS LEVELS OF HYPOHYDRATION AND WERE MEASURED FOR PLASMA RENIN ACITIVITY LEVELS OF ALDOSTERONE, PLASMA, ND PLASMA CORTISOL. RESULTS INDICATED THAT HORMONAL RESPONSES ARE INFLUENCED BY THE HYPOHYDRATION LEVEL AND IT WAS GENERALLY CONCLUDED THAT HEAT ACCLIMATIZATION ATTENUATES THE ANTICIPATED EFFECTS OF EXERCISE IN THE HEAT ON PLASMA HORMONAL RESPONSES.

TITLE: HUMAN PERFORMANCE IN CONTINUOUS/SUSTAINED OPERATIONS AND THE DEMANDS OF EXTENDED WORK/REST SCHEDULES: AN ANNOTATED BIBLIOGRAPHY
DATA SOURCE NO: WRAIR-BB-85-1, ADA155619
AUTHOR: G.P. KRUEGER, L. CARDENALES-ORTIZ, C.A. LOVELESS
ORIGINATING ORG: WALTER REED ARMY INSTITUTE OF RESEARCH, WASHINGTON, DC FOR US ARMY RESEARCH AND DEVELOPMENT COMMAND, FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS ANNOTATED BIBLIOGRAPHY LISTS 399 REFERENCES CONTAINING RESEARCH DATA, CONCEPTUAL POSITION PAPER AND DIFFERENT METHODOLOGICAL APPROACHES TO STUDYING HUMAN PERFORMANCE IN CONTINUOUS/SUSTAINED OPERATIONS AND EXTENDED WORK/REST CYCLES OR SCHEDULES. THE TIME FRAME COVERED IN THE REFERENCES IS FROM 1940 TO 1985.

TITLE: CHEMICAL WARFARE: A SELECTED BIBLIOGRAPHY
DATA SOURCE NO: ADA159715
ORIGINATING ORG: US ARMY WAR COLLEGE, CARLISLE BARRACKS, PA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/19

COMMENTS: CONTAINS THREE SECTIONS: BOOKS AND DOCUMENTS, OTHER BIBLIOGRAPHIES ON CHEMICAL WARFARE, AND PERIODICALS. MOST OF THE REFERENCES TO ARMY FIELD MANUALS ARE PRIOR TO 1983. THE SEVEN OTHER BIBLIOGRAPHIES ARE DATED BETWEEN 1981 AND 1985. FIRST SECTIONS CONTAIN EXTENSIVE REFERENCE TO CONGRESSIONAL, ARMY, DEPARTMENT OF STATE, AND DEPARTMENT OF DEFENCE DOCUMENTATION. REFERENCES RANGE FROM PROFESSIONAL JOURNALS (ARMY, AIR FORCE, NATIONAL GUARD) TO SUCH DIVERSE PUBLICATIONS AS SCIENCE, NATURE, AND PLAYBOY.

TITLE: INTERACTIVE SCENARIO COMPUTER MODEL FOR DOSE RATES TO AIRCREWS IN FLIGHT THROUGH NUCLEAR DEBRIS CLOUDS
DATA SOURCE NO: USAFSAM-TR-85-49, ADA158741
AUTHOR: J. TABOADA, D. HEGEDUSICH, E.L. BELL
ORIGINATING ORG: US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/01

COMMENTS: AN INTERACTIVE COMPUTER MODEL IS DESCRIBED FOR THE RAPID CALCULATION OF GAMMA RADIATION DOSES TO AIRCREWS IN HYPOTHETICAL FLIGHTS THROUGH NUCLEAR DEBRIS CLOUDS. THE MODEL IS BASED ON CASSANDRA, A US ARMY DEVELOPED CODE FOR DUST CONCENTRATION CALCULATIONS AT LOCI THROUGH SUCH A CLOUD. THE PRESENT MODEL COMPUTES LOCAL RADIATION DOSE INTEGRALS ALONG A USER-SPECIFIED FLIGHT PATH. IT IS DESIGNED FOR EFFICIENT INTERACTIVE OPERATION ON A DIGITAL EQUIPMENT CORPORATION MODEL VAX 11/780 COMPUTER.

TITLE: CHEMICAL ATTACK WARNING AND REPORTING NETWORK STUDY, FINAL REPORT
DATA SOURCE NO: SAND-85-0077, ADB091716
AUTHOR: M.N. CRAVENS, M.J. EATON, D.C. SMATHERS
ORIGINATING ORG: SANDIA NATIONAL LABORATORIES, ALBUQUERQUE, NM FOR DEFENSE COMMUNICATIONS AGENCY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/01

COMMENTS: THIS REPORT OUTLINES A CONCEPTUAL ARCHITECTURE FOR A MULTI-ORGANIZATION, THEATER-WIDE NETWORK TO IMPROVE CHEMICAL ATTACK WARNING AND REPORTING. KEY COMPONENTS THAT SHOULD BE DEVELOPED TO SUPPORT THE NETWORK ARE IDENTIFIED AND THEIR GENERAL CHARACTERISTICS DESCRIBED.

THE RESULTS OF A FIELD DEMONSTRATION OF PORTIONS OF THE CONCEPT ARE ALSO PRESENTED.

TITLE: HANDBOOK FOR NUCLEAR, BIOLOGICAL AND CHEMICAL DEFENSE TRAINING
DATA SOURCE NO: ACSC-85-2430, ADB093945
AUTHOR: K.L. SILVERNAIL
ORIGINATING ORG: AIR COMMAND AND STAFF COLLEGE (ACSC/EDCC), MAXWELL AFB, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/04/01

COMMENTS: THIS HANDBOOK HAS BEEN DEVELOPED TO SUPPLEMENT ANNUAL INDIVIDUAL NBC DEFENSE TRAINING FOR AIR FORCE PERSONNEL. IT CONTAINS THE NBC TASKS ESSENTIAL TO HELPING INDIVIDUALS SURVIVE IN AN NBC ENVIRONMENT (E.G., FITTING THE PROTECTIVE MASK, RECOGNIZE AND GIVE FIRST AID TO A NERVE AGENT CASUALTY, AND USE THE M9 DETECTOR TAPE TO DETECT A CHEMICAL AGENT). EACH TASK IS ORGANIZED IN A FORMAT THAT INCLUDES THE TASK, ORIENTATION AND TRAINING STATEMENTS, CONDITIONS, REQUIRED RESOURCES, STANDARDS AND PERFORMANCE STEPS.

TITLE: CIRCULATORY AND THERMOREGULATORY ACTIONS OF HYDRATION DURING EXERCISE-HEAT STRESS
DATA SOURCE NO: M36/85, ADA158440
AUTHOR: M.N. SAWKA, R.P. FRANCESCONI, K.B. PANDOLF
ORIGINATING ORG: ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (ARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/08/01

COMMENTS: STUDY OF HYPOHYDRATION CAUSED BY SWEAT OUTPUT EXCEEDING WATER INTAKE DURING EXERCISE. HYPOHYDRATION DURING EXERCISE CAUSES A GREATER HEAT STORAGE, ELEVATING CORE TEMPERATURE ABOVE HYDRATION LEVELS. DATA IS PRESENTED ON THE RESPONSES OF SUBJECTS PERFORMING PROLONGED EXERCISE, CARDIOVASCULAR RATES AND RECTAL TEMPERATURES FOR FOUR HYDRATION LEVELS ARE GIVEN.

TITLE: THIRST AND FLUID INTAKE FOLLOWING GRADED HYPOHYDRATION LEVELS IN HUMANS
DATA SOURCE NO: ADA156201
AUTHOR: D.B. ENGEL, O. MALLER, M.N. SAWKA, R.N. FRANCESCONI, L. DROLET, A.J. YOUNG

ORIGINATING ORG: US ARMY NATICK RESEARCH AND DEVELOPMENT CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/06

COMMENTS: THE RELATIONSHIP AMONG CHANGES IN THIRST SENSATIONS, BLOOD VARIABLES, AND DIFFERENTIAL FLUID INTAKE IN HYPOHYDRATED HUMANS WAS EXAMINED. SEVEN SUBJECTS WERE HYPOHYDRATED BY 0 PERCENT, 3 PERCENT, 5 PERCENT, AND 7 PERCENT OF THEIR BODY WEIGHT. STATISTICALLY SIGNIFICANT LINEAR AND QUADRATIC TRENDS WERE FOUND FOR THE INTENSITY OF SEVERAL SENSATIONS ASSOCIATED WITH PROGRESSIVE HYPOHYDRATION LEVELS. IN GENERAL, PLASMA OSMALITY AND RENIN ACTIVITY INCREASED AND PLASMA VOLUME DECREASED WITH INCREASING HYPOHYDRATION LEVELS. SUBJECTS ALSO COULD NOT REHYDRATE BACK TO BASELINE BODY WEIGHT GIVEN 1 HOUR OF DRINKING.

TITLE: TECHNICAL EVALUATION OF THE AR-5 RESPIRATOR FOR US MARINE CORPS HELICOPTER AIRCREW
DATA SOURCE NO: SY-73R-85, ADB094476
AUTHOR: L.C. OMLIE, D. CALL
ORIGINATING ORG: NAVAL AIR TEST CENTER, PATUXENT RIVER, MD DEVELOPMENT CENTER, WARMINSTER, PA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/08/02

COMMENTS: THIS DOCUMENT SUMMARIZES A TECHNICAL EVALUATION (NOVEMBER 1984) OF THE AR-5 RESPIRATOR FOR US MARINE CORPS HELICOPTER AIRCREW. THE AR-5 RESPIRATOR IS A PRIME CANDIDATE FOR PROVIDING US AIRCREW WITH ABOVE THE NECK CHEMICAL AND BIOLOGICAL PROTECTION. SEVERAL ASSETS OF THE AR-5 RESPIRATOR WERE: 1) COMPATIBILITY WITH AIRCREW LIFE SUPPORT SYSTEMS, 2) VAL SALVA CAPABILITY, 3) DRINKING CAPABILITY, AND 4) GOOD FORWARD AND PERIPHERAL VISION. DEFICITS INCLUDE: 1) INTERCOM UNIT MALFUNCTIONS, 2) HEAD MOVEMENT WAS RESTRICTED, AND 3) WEIGHT OF UNIT ACCELERATED PILOT FATIGUE.

TITLE: ANALYTICAL EVALUATION OF CURRENT UNITED STATES ARMY GUIDELINES FOR SOLDIERS WEARING NBC PROTECTIVE OVERGARMENTS UNDER VARIOUS ENVIRONMENTAL CONDITIONS
DATA SOURCE NO: ADA154509
AUTHOR: L.T. RICH
ORIGINATING ORG: ARMY MILITARY PERSONNEL CENTER, ALEXANDRIA, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/04/26

COMMENTS: THIS THESIS REPORT EVALUATES THE CURRENT US ARMY CHEMICAL OVERGARMENT IN THE MOPP-4 CONFIGURATION UNDER VARIOUS

ENVIRONMENTAL CONDITIONS. THE EFFECT OF HUMIDITY, TEMPERATURE, RADIANT HEAT LOAD, AND WIND VELOCITY ON EVALUATING THERMAL STRESS. THIS REPORT PRESENTS THAT WATER LOSS CORRESPONDING TO 10 PERCENT DEHYDRATION OF THE BODY DEMANDS WATER REPLACEMENT IN A SHORT TIME, THE ONSET OF WATER DEPLETION HEAT EXHAUSTION. AT TEMPERATURES ABOVE 27 DEGREES CELCIUS, THEN CONSUME ONE QUART OF WATER EVERY TWO HOURS. FORMULAS ARE PRESENTED FOR THERMAL ENERGY BALANCE, WATER LOSS THROUGH SWEATING, AND DATA FROM WISSLER'S MODEL.

TITLE: DESIGN AND FABRICATION OF A TUNNEL AIRLOCK FOR LITTER PATIENTS (TALP)
DATA SOURCE NO: CRDC-CR-85017, ADB092261
AUTHOR: P.S. RIEGEL
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/04/01

COMMENTS: THIS REPORT DESCRIBES THE DESIGN AND CONSTRUCTION OF A TUNNEL AIRLOCK FOR LITTER PATIENTS (TALP) DESIGNED TO MATE AND FUNCTION WITH THE XM20 SIMPLIFIED COLLECTIVE PROTECTION EQUIPMENT (SCPE) DEVELOPED BY THE US ARMY CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC). THE TALP WILL PERMIT A PATIENT ON A LITTER TO BE ADMITTED TO THE INTERIOR OF THE SCPE BY SLIDING THE LITTER THROUGH AN AIRLOCK. FIVE PROTOTYPE DESIGNS WERE DELIVERED TO CRDC FOR FURTHER REVIEW. CONTAINS FORMULAS FOR PURGING THE TALP, SIZING THE FLOW CONTROL ORIFICES, AND FLOW TEST OF THE FIRST PROTOTYPE.

TITLE: A DEGRADATION ANALYSIS METHODOLOGY FOR MAINTENANCE TASKS
DATA SOURCE NO: ADA155073
AUTHOR: D.W. HARRIS
ORIGINATING ORG: ARMY MILITARY PERSONNEL CENTER, ALEXANDRIA, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS THESIS PROPOSES A METHODOLOGY FOR ESTIMATING THE MECHANICAL DEGRADATION OF INDIVIDUALS WHEN WEARING CHEMICAL PROTECTIVE CLOTHING. THE OVERALL GOAL OF THIS DECISION MODEL IS TO ACCOUNT FOR THE MAJORITY OF TASK-TIME DEGRADATION NOT TOTAL TASK TIME. VERY GOOD DISCUSSION OF THE PROBLEM.

TITLE: TACTICAL AEROMEDICAL EVACUATION IN A CHEMICAL ENVIRONMENT
DATA SOURCE NO: DPG-CP-85-501
ORIGINATING ORG: DUGWAY PROVING GROUND (DPG), DUGWAY, UT;
CONTRACTOR: ANDRALIS RESEARCH CORPORATION, BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/08/12

COMMENTS: THIS DOCUMENT OUTLINES THE OPERATION OF THE TACTICAL AEROMEDICAL EVACUATION SYSTEM (TAES), IN A CHEMICAL ENVIRONMENT BY THE MILITARY AIRLIFT COMMAND (MAC). IT CONSISTS OF THREE ELEMENTS: 1) AEROMEDICAL EVACUATION LIAISON TEAM (AELT), WHICH IS ATTACHED TO FORWARD MEDICAL TREATMENT UNITS; 2) AEROMEDICAL EVACUATION CONTROL CENTER (AECC), WHICH IS LOCATED AT THE COMMAND PROVIDING AIRCRAFT FOR MOVEMENT INTO THE COMBAT ZONE; AND 3) MOBILE AEROMEDICAL STAGING FACILITY (MASF), WHICH IS A SHORT-TERM HOLDING AND TRANSPORTATION FACILITY THAT DOES NOT HAVE A PHYSICIAN AND ONLY PROVIDES NURSING CARE (IT IS NORMALLY LOCATED ADJACENT TO AN AIRSTRIP WHERE IT PROVIDES SHORT-TERM HOLDING AND SUPPORTIVE TREATMENT).

TITLE: FINAL REPORT, CHEMICAL WARFARE DEFENSE (CWD) SORTIE PRODUCTION AND EMPLOYMENT EXERCISE, 5 MARCH 1985
AUTHOR: J.E. CHAMBERS
ORIGINATING ORG: HEADQUARTERS TACTICAL AIR COMMAND, LANGLEY AFB, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/07

COMMENTS: THIS REPORT SUMMARIZES THE FINDINGS FROM THE 72-HOUR OPERATIONAL EXERCISE CONDUCTED BY THE 4TH TACTICAL FIGHTER WING ON 5 MARCH 1985. ALTHOUGH SEVERAL RECOMMENDATIONS WERE BROUGHT OUT DURING THE EXERCISE AND DURING POST-EXERCISE DISCUSSIONS (MANY OF WHICH WILL BE INCORPORATED IN TACR 50-17), TAWC REPORTS THAT THERE WAS NO SIGNIFICANT DEGRADATION TO SORTIE PRODUCTION. THE READER IS CAUTIONED TO NOTE WEATHER CANCELLATIONS, AND TO READ THE CONCLUSIONS AND RECOMMENDATIONS CAREFULLY. PARTICULAR ATTENTION SHOULD BE GIVEN TO HEAT STRESS AND AIRCREW COMMENTS.

TITLE: SYSTEMS VULNERABILITY AND LETHALITY IN THE DEVELOPMENT PHASE
DATA SOURCE NO: ADA149737
AUTHOR: D.F. HASKELL
ORIGINATING ORG: BALLISTIC RESEARCH LABORATORY, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/01/22

COMMENTS: DISCUSSES METHODOLOGY OF ASSESSING THE VULNERABILITY OF TARGETS AND MATERIEL TO WEAPON EFFECTS. TARGET CATEGORIES OF CONCERN INCLUDE: AIRCRAFT, GUNS, VEHICLES, PERSONNEL, BUILDINGS, AND INSTALLATIONS, WHICH HAVE A CERTAIN VULNERABILITY TO DAMAGE FROM BLASTS, RADIATION, CHEMICAL AGENTS, FLAME AND NON-NUCLEAR EMP. METHODOLOGY, IN SIMPLE TERMS, CONSISTS OF DETERMINING THE SUSCEPTIBILITY OF TARGET COMPONENTS TO DAMAGE MECHANISMS AND INTEGRATING COMPONENT SUSCEPTIBILITIES TO CALCULATE A WHOLE-TARGET VULNERABILITY. NO VULNERABILITY DATA.

TITLE: WARTIME CONUS (CONTINENTAL UNITED STATES) CASUALTY DISTRIBUTION SYSTEM USING DEDICATED CRAF AIRLIFT
DATA SOURCE NO: AFIT/GST/OS/85M-1, ADA156076
AUTHOR: J.P ALFANO, J.C. O'NEILL
ORIGINATING ORG: AIR FORCE INSTITUTE OF TECHNOLOGY, WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/03/01

COMMENTS: THE PURPOSE OF THIS THESIS IS TO INVESTIGATE THE USE OF THE CIVIL RESERVE AIR FLEET (CRAF) AIRCRAFT AND C-9 AIRCRAFT TO DELIVER CASUALTIES TO CONUS HOSPITALS. THE CASUALTY DISTRIBUTION SYSTEM WAS MODELED USING SLAM SIMULATION AND FORTRAN COMPUTER CODE. THIS WAS A FEASIBILITY STUDY WITH SOME TREND ANALYSIS FOR THE C-9 REQUIREMENTS AND A SENSITIVITY ANALYSIS TO STUDY MAXIMUM CAPACITY. THIS IS FOR CONVENTIONAL ATTACK SCENARIOS.

TITLE: IRAN/IRAQ: USE OF CHEMICAL WEAPONS IN THE GULF WAR (SELECTED ARTICLES)
DATA SOURCE NO: FTD-ID(RS)T-0258-85, ADB093204
ORIGINATING ORG: FOREIGN TECHNOLOGY DIVISION (FTD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/12

COMMENTS: THIS DOCUMENT IS A TRANSLATION OF WEST GERMAN REPORTS ON THE USE OF CHEMICAL WEAPONS IN THE GULF WAR BETWEEN IRAN AND IRAQ. THE REPORT CONTAINS THE RESULTS FROM INTERVIEWS AND MEDICAL EXAMINATIONS/TEST OF FOUR IRANIAN SOLDIERS. THE EVIDENCE STRONGLY SUGGEST THE USE OF MUSTARD. THE MUSTARD WAS APPEARENTLY IMPREGNATED INTO FINE DUSTS AND THEN EXPLOSIVELY DELIVERED.

TITLE: DRUG THERAPY OF NERVE AGENT POISONING RESEARCH EFFORTS AND MEDICAL OBJECTIVES
DATA SOURCE NO: USAMRICD-85-01, ADB093494
AUTHOR: R.H. JONG
ORIGINATING ORG: US ARMY MEDICAL RESEARCH INSTITUTE OF CHEMICAL DEFENSE (USAMRICD), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/01

COMMENTS: THIS REPORT SUMMARIZES THE PHARMACOLOGY AND TREATMENT OF NERVE AGENT POISONING. EMPHASIS IS PLACED UPON OXIME PROPHYLAXIS AND THE DIFFICULTY OF REGENERATING BRAIN CHOLINESTEPASE. FIGURES AND BIBLIOGRAPHY ARE WORTHWHILE. THE DOCUMENT PROVIDES A GOOD SUMMARY OF CURRENT KNOWLEDGE.

TITLE: ANALYSIS OF CHEMICAL WARFARE OPERATIONS
DATA SOURCE NO: IDA-P-1812, ADC036468
AUTHOR: F.J. KROESEN, J.K. STONER
ORIGINATING ORG: BURDESHAW ASSOCIATES, LTD., BETHESDA, MD FOR THE PENTAGON, WASHINGTON, DC
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/01/01

COMMENTS: THIS STUDY IS AN EXCELLENT ANALYSIS OF THE CHEMICAL/CONVENTIONAL BATTLEFIELD OF THE NEAR FUTURE BY MEANS OF A NARRATIVE DESCRIPTION BASED ON COMMANDERS' ESTIMATES OF THE SITUATION. THE ANALYSIS PROVIDES AN EVALUATION OF NATO'S BASELINE CHEMICAL WARFARE (CW) POSTURE IN 1990 VERSUS THE THREAT POSED BY THE SOVIET UNION/WARSAW PACT CW CAPABILITY. ALSO SEE DTIC REPORT NUMBER ADA151580 FOR UNCLASSIFIED VERSION.

TITLE: JOINT OPERATIONAL TESTS OF US RETALIATORY CAPABILITIES IN CHEMICAL WARFARE (JCHEM)
AUTHOR: H.C. LYMN, C.H. LEATHERBURY
ORIGINATING ORG: JOINT CHEMICAL WARFARE JOINT TEST FORCE, FALLS CHURCH, VA
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/10/29

COMMENTS: THIS DOCUMENT DESCRIBES THE OVERALL TEST PLAN/PROGRAM (JCHEM), DEVELOPED BY THE INSTITUTE FOR DEFENSE ANALYSIS, TO DETERMINE THE CURRENT ABILITY OF US FORCES OF ALL SERVICES TO JOINTLY PREPARE FOR, CONDUCT, AND SUSTAIN RETALIATORY CHEMICAL WARFARE. THE DOCUMENT FOCUSES ON THE 14 FUNCTIONAL PROCESSES THAT, WHEN TAKEN TOGETHER, CONSTITUTE THE US RETALIATORY CAPABILITIES. THESE FUNCTIONAL PROCESSES ARE RELATED TO THE TYPES OF DATA NECESSARY AND THE TYPES OF

EXERCISES AND OTHER SOURCES WHERE DATA CAN BE COLLECTED. CURRENT SCHEDULES AND EXERCISE PLANS FOR 85, 86 AND 87 ARE GIVEN.

TITLE: CHEMICAL DEFENSE PLANNING DOCUMENT (CDPD), VOLUME II: ANALYSIS OF REQUIREMENTS
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC), DAYTON, OH FOR AERONAUTICAL SYSTEM DIVISION (ASD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/05/10

COMMENTS: THIS DOCUMENT PRODUCED UNDER THE AIR FORCE'S LONG RANGE CHEMICAL DEFENSE DEVELOPMENT PLAN (LRCDDP) EFFORT IS INTENDED AS THE BASIS FOR A PLAN TO DEVELOP AN INTEGRATED AIR BASE CHEMICAL DEFENSE SYSTEM THAT WILL MEET THE MISSION CAPABILITY REQUIREMENTS FOR THE 1990'S. THIS VOLUME, SECOND OF FIVE, INCLUDES A REVIEW OF THE GENERAL CHEMICAL WARFARE THREAT: AGENTS, MUNITIONS, METHODS OF ATTACK (COMBINED CONVENTIONAL AND CB ORDINANCE). IT REVIEWS THE USAF CWD WAR/MOBILIZATION PLAN AND ANNEX J (WMP) CONCEPTS OF OPERATIONS, MISSION AND CWD CAPABILITY GOALS. MAJCOM REQUIREMENTS AS GIVEN IN OFFICIAL STATEMENTS OF NEED (SONS) ARE SUMMARIZED AND COMPARED WITH USER NEEDS AS EXPRESSED IN CWD FUNCTIONAL MASTER PLANS AND CWD CONFERENCES/MEETINGS.

TITLE: CHEMICAL DEFENSE PLANNING DOCUMENT (CDPD), VOLUME III: USAF CHEMICAL DEFENSE PROGRAMS
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC), DAYTON, OH FOR AERONAUTICAL SYSTEM DIVISION, WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/10

COMMENTS: THIS DOCUMENT PRODUCED UNDER THE AIR FORCE'S LONG RANGE CHEMICAL DEFENSE DEVELOPMENT PLAN (LRCDDP) EFFORT IS INTENDED AS THE BASIS FOR A PLAN TO DEVELOP AN INTEGRATED AIR BASE CHEMICAL DEFENSE SYSTEM THAT WILL MEET THE MISSION CAPABILITY REQUIREMENTS FOR THE 1990'S. THIS VOLUME, THIRD OF FIVE, REVIEWS USAF CWD PROGRAMS' ACQUISITION CYCLES. INFORMATION IS ORGANIZED IN FUNCTIONAL AREAS: INDIVIDUAL PROTECTIVE EQUIPMENT (IPE), COLLECTIVE PROTECTION (CP); CHEMICAL DETECTION, IDENTIFICATION AND WARNING (CDIW) AND CONTAMINATION CONTROL.

TITLE: CHEMICAL DEFENSE PLANNING DOCUMENT (CDPD), VOLUME I: EXECUTIVE SUMMARY
ORIGINATING ORG: SCIENCE APPLICATIONS INTER CORPORATION (SAIC), DAYTON, OH FOR AERONAUTICAL SYSTEM DIVIS WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/10

COMMENTS: THIS DOCUMENT PRODUCED UNDER THE AIR FORCE'S LONG RANGE CHEMICAL DEFENSE DEVELOPMENT PLAN (LRCDDP) EFFORT IS INTENDED AS THE BASIS FOR A PLAN TO DEVELOP AN INTEGRATED AIR BASE CHEMICAL DEFENSE SYSTEM THAT WILL MEET THE MISSION CAPABILITY REQUIREMENTS FOR THE 1990'S. THIS VOLUME, FIRST OF FIVE, PROVIDES AN OVERVIEW AND SUMMARY ON ANALYTICAL CONCLUSIONS AND RECOMMENDATIONS.

TITLE: CHEMICAL DEFENSE PLANNING DOCUMENT (CDPD), VOLUME IV: ANALYSIS OF EFFECTS OF CWD CAPABILITIES ON AIR BASE OPERATIONS IN THE 1990 TIMEFRAME
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC), DAYTON, OH FOR AERONAUTICAL SYSTEM DIVISION (ASD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/05/10

COMMENTS: THIS DOCUMENT PRODUCED UNDER THE AIR FORCE'S LONG RANGE CHEMICAL DEFENSE DEVELOPMENT PLAN (LRCDDP) EFFORT IS INTENDED AS THE BASIS FOR A PLAN TO DEVELOP AN INTEGRATED AIR BASE CHEMICAL DEFENSE SYSTEM THAT WILL MEET THE MISSION CAPABILITY REQUIREMENTS FOR THE 1990'S. THIS VOLUME, FOURTH OF FIVE, CONTAINS AN ANALYSIS OF USAF CURRENT AND PLANNED CHEMICAL WARFARE DEFENSE CAPABILITIES IN VIEW OF PROJECT 1990 CW REQUIREMENTS. IT IDENTIFIES THE DEFICIENCIES EXPECTED IN EACH OF FOUR FUNCTIONAL AREAS AND ASSESSES THEIR IMPACT ON AIR BASE OPERATIONS, I.E., SORTIE GENERATION. THE AIR BASE COMPUTER MODEL WAS USED TO SIMULATE AIR BASE OPERATIONS.

TITLE: CHEMICAL DEFENSE PLANNING DOCUMENT (CDPD), VOLUME V: APPENDICES
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC), DAYTON, OH FOR AERONAUTICAL SYSTEM DIVISION (ASD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/10

COMMENTS: THIS DOCUMENT PRODUCED UNDER THE AIR FORCE'S LONG RANGE CHEMICAL DEFENSE DEVELOPMENT PLAN (LRCDDP) EFFORT IS INTENDED AS THE BASIS FOR A PLAN TO DEVELOP AN INTEGRATED AIR BASE CHEMICAL DEFENSE

SYSTEM THAT WILL MEET THE MISSION CAPABILITY REQUIREMENTS FOR THE 1990'S. THIS VOLUME, FIFTH OF FIVE, CONTAINS SUMMARIES ON RELATED CWD PROJECTS/EQUIPMENTS UNDER MANAGEMENT OF THE US ARMY, NAVY, OR NATO ALLIES.

TITLE: FIELD MEASURES FOR ASSESSING CHEMICAL WARFARE DEFENSE PERFORMANCE, II. AIR BASE GROUND DEFENSE
DATA SOURCE NO: AFAMRL-TR-85-021
AUTHOR: R.L. SHEW, T.L. RAMIREZ, G.M. JAMES
ORIGINATING ORG: SYSTEMS RESEARCH LABORATORIES, INC., DAYTON, OH FOR US AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY (AFAMRL/HET), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/05/01

COMMENTS: ANALYSIS OF AIR BASE GROUND DEFENSE (ABGD) PERSONNEL PERFORMANCE DURING CHEMICAL WARFARE DEFENSE EXERCISES. TASKS WERE ANALYZED FOR HEAT BUILD-UP, MASK VIEW, BODY MOBILITY AND FINGER DEXTERITY. ALSO ASSESSED WERE TRAINING ADEQUACY AND ENSEMBLE DAMAGE. TASKS WERE ASSESSED ON A 5-POINT SCALE (1=CHEMICAL ENSEMBLE AND NO EFFECT, 5=CHEMICAL ENSEMBLE HAD EXCESSIVE EFFECT). NO ESTIMATE OF TASK TIME DEGRADATIONS WAS GIVEN.

TITLE: HUMAN FACTORS ENGINEERING TEST PLAN FOR SELECTION OF A CBR PROTECTIVE GARMENT
DATA SOURCE NO: NADC-85027-60, AD8095591
AUTHOR: G.L. ROBSON, R.L. GRETH
ORIGINATING ORG: ESSEX CORPORATION, WARMINSTER, PA FOR NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/04

COMMENTS: THIS DOCUMENT PROPOSES A 4 PHASE APPROACH: LITERATURE REVIEW, FIELD AND LABORATORY STUDIES, FLIGHT TEST AND FINAL SELECTION OF A CBR PROTECTIVE FLIGHT GARMENT FOR NAVY AND MARINE CORPS HELICOPTER AIRCREWS. GUIDELINES WERE ESTABLISHED FOR THE EVALUATION OF A VARIETY OF PROTECTIVE UNDERGARMENTS, OVERGARMENTS AND EXPOSURE SUITS BASED ON THE FOLLOWING ISSUES: SAFETY/SURVIVABILITY, MOBILITY, COMFORT, CREW OPERATIONAL EFFECTIVENESS AND COST.

TITLE: US ARMY TEST AND EVALUATION COMMAND, TEST OPERATIONS PROCEDURE, COLD REGIONS LOGISTIC SUPPORTABILITY TESTING OF CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DEFENSE EQUIPMENT

DATA SOURCE NO: TOP 8-4-015, ADA158729
ORIGINATING ORG: US ARMY COLD REGIONS TEST CENTER, APO, SEATTLE FOR USA TEST AND EVALUATION COMMAND, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/24

COMMENTS: THIS DOCUMENT DESCRIBES TEST METHODS AND TECHNIQUES NECESSARY TO PERFORM A LOGISTIC SUPPORTABILITY TEST OF CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DEFENSE EQUIPMENT IN COLD REGIONS. THIS IS A COOKBOOK OF HOW TO DO TEST AND EVALUATION SIMILAR TO A MIL-STANDARD.

TITLE: TEST REPORT, AIRCRAFT OPERATIONS IN A TOXIC ENVIRONMENT, SUBTEST 11 - HAZARDS OF SIMULATED TOXIC VAPOR IN OPERATIONS OF LARGE MULTIENGINE AIRCRAFT (LMEAC), VOLUME II
DATA SOURCE NO: DPG-FR-86-301
AUTHOR: W.T. TAYLOR
ORIGINATING ORG: DUGWAY PROVING GROUND (DPG), DUGWAY, UT; CONTRACTOR: ANDRALIS RESEARCH CORPORATION, BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/10/01

COMMENTS: CONTAINS DOSAGE AND CONCENTRATION CURVES FOR 45 TRIALS INVOLVING C-130E, C-130H, C-141B, AND C-5A AIRCRAFT DURING SIMULATED GROUND OPERATIONS AND TAXI OPERATIONS. DMMP SIMULANT WAS USED FOR CHALLENGE. VAPOR LEVELS WERE MEASURED USING MIRAN AND BUBBLER ANALYSIS. DETAILS OF TESTS ARE NOT PROVIDED IN THIS VOLUME.

TITLE: A CONCEPTUAL FRAMEWORK FOR ANALYZING TERRORIST GROUPS
DATA SOURCE NO: R-3151
AUTHOR: B. CORDES, B.M. JENKINS, K. KELLEN, G. BASS, D. RELLES, W. SATER, M. JUNCOSA, W. FOWLER, G. PETTY
ORIGINATING ORG: THE RAND CORPORATION, SANTA MONICA, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/01

COMMENTS: THIS REPORT DESCRIBES A METHOD FOR STUDYING THE CHARACTERISTICS OF TERRORIST GROUPS DEVELOPED AT RAND. TWENTY-NINE TERRORIST GROUPS (NO LIBYANS) WERE CODED FROM THE RAND CHRONOLOGY OF INTERNATIONAL TERRORISM DATA BASE INTO QUESTIONNAIRES. DATA RANGES FROM 1968-1984. QUESTIONNAIRES WERE ANALYZED THROUGH THE CONCEPTUAL FRAMEWORK. DOCUMENT CONTAINS NUMEROUS TABLES AND FIGURES, RELATING FREQUENCY DISTRIBUTIONS, PERCENTAGES AND AVERAGE PROBABILITIES FOR TERRORIST ACTS, TYPE, CASUALTY DATA, TARGETS, LOCATION, ETC. USEFUL IF DATA NEEDED FOR

BASIC INFORMATION. NO TECHNICAL OR SKILLS, FINANCE OR WEAPONS DATA AVAILABLE.

TITLE: SIMPLE ANALYTIC SOLUTIONS TO COMPLEX MILITARY PROBLEMS
DATA SOURCE NO: N-2211-AF
AUTHOR: M.V. FINN, G.A. KENT
ORIGINATING ORG: RAND CORPORATION, SANTA MONICA, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/08/01

COMMENTS: THIS NOTE DISCUSSES SEVEN ANALYTIC TECHNIQUES WHICH HAVE BEEN USED TO SOLVE OR ELIMINATE IMPORTANT MILITARY PROBLEMS: 1) THE OPTIMAL MIX OF OFFENSIVE AND DEFENSIVE DEPLOYMENTS, 2) A SIMPLE ALGORITHM TO DETERMINE THE COST EFFECTIVENESS OF BOMBER PENETRATION AIDS, 3) THE MERIT OF DEPLOYING STRATEGIC BALLISTIC MISSILES IN MULTIPLE SHELTERS, 4) THE OPTIMAL BOMBER PAYLOAD AGAINST MIXED DEFENSES, 5) THE OPTIMAL PATTERN RADIUS FOR A TACTICAL MUNITION DISPENSER, AND 6) THE OPTIMAL CAPABILITY OF A LAYERED DEFENSE.

TITLE: DETAILED AIRCREW-ORIENTED AIR SUPERIORITY MISSIONS, VOLUME II
DATA SOURCE NO: AFAMRL-TR-85-022, ADC036538
AUTHOR: H.L. WISE, R.M. MASTERS, P.M. HORN, B.R. SPARKS, J.J. FARCHT
ORIGINATING ORG: SYSTEMS RESEARCH LABS INC., DAYTON, OH FOR AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY (AFAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/03/01

COMMENTS: THIS REPORT CONTAINS DETAILED, AIRCREW-ORIENTED AIR SUPERIORITY MISSION DESCRIPTIONS WHICH WERE CREATED TO SUPPORT THE COCKPIT AUTOMATION TECHNOLOGY (CAT) PROGRAM UNDERTAKEN BY THE AEROSPACE MEDICAL DIVISION OF AIR FORCE SYSTEMS COMMAND. THE REPORT IS REPRESENTATIVE OF THE PROBLEMS ASSOCIATED WITH PERFORMING FIGHTER SWEEP AND AREA DEFENSE MISSIONS.

TITLE: FACTORS WHICH ALTER HUMAN PHYSIOLOGICAL RESPONSES DURING EXERCISE-HEAT ACCLIMATION
DATA SOURCE NO: USARIEM-M-41/85, ADA160580
AUTHOR: K.B. PANDOLF, M.N. SAWKA, Y. SHAPIRO

ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/09/01

COMMENTS: THIS ARTICLE ADDRESSES THREE FACTORS WHICH ARE THOUGHT TO ALTER HUMAN PHYSIOLOGICAL RESPONSES DURING EXERCISE-HEAT ACCLIMATION. THESE FACTORS ARE: 1) THE INFLUENCE OF CARDIOVASCULAR ENDURANCE TRAINING, 2) THE PHYSIOLOGICAL COMPARISON BETWEEN GENDERS DURING THE PERFORMANCE OF EXERCISE IN THE HEAT AND 3) THE PHYSIOLOGICAL EFFECTS OF AGING ON EXERCISE-HEAT ACCLIMATION. DOCUMENT SUMMARIZES SEVERAL STUDIES WITH CONFLICTING RESULTS.

TITLE: CANE LITERATURE RESEARCH COMPENDIUM, VOLUME II - ABSTRACTS
DATA SOURCE NO: ORI-TR-2446, ADB095734
AUTHOR: D. JONES, T. KITTING, C. BABCOCK, J. MORABIT, M. BLACK, D. VIERS, S. TESKO
ORIGINATING ORG: ORI, INC., MONTEREY, CA FOR US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/08/01

COMMENTS: VOLUME II OF A REPORT PREPARED IN SUPPORT OF THE COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT FORCE DEVELOPMENT TEST AND EXPERIMENTATION. THIS VOLUME IS AN ALPHABETICAL COLLECTION OF ABSTRACTS OF DOCUMENTS RELEVANT TO THE STUDY AND CONTAINS THE FOLLOWING INFORMATION ABOUT EACH DOCUMENT - TITLE, AUTHOR, AGENCY, CLASSIFICATION, PUBLICATION DATE, DATA SOURCE NUMBER, TYPE OF DOCUMENT (I.E., TECHNICAL REPORT, PROGRESS REPORT, HANDBOOK, BIBLIOGRAPHY, ETC.), FUNCTIONAL CATEGORIES, ISSUE AREAS, LOCATION, AND AN ABSTRACT.

TITLE: CANE LITERATURE RESEARCH COMPENDIUM, VOLUME I - INDEXES
DATA SOURCE NO: ORI-TR-2446, ADB095733
AUTHOR: D. JONES, T. KITTING, C. BABCOCK, J. MORABIT, M. BLACK, D. VIERS, S. TESKO
ORIGINATING ORG: ORI, INC., MONTEREY, CA FOR US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/08/01

COMMENTS: VOLUME I OF A REPORT PREPARED IN SUPPORT OF THE COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT FORCE DEVELOPMENT TEST AND EXPERIMENTATION. THIS VOLUME IS AN INDEX OF LITERATURE AND CONTAINS AN ALPHABETICAL LIST OF TITLES, AN INDEX OF ISSUE AREAS (COMMAND CONTROL,

COMMUNICATIONS, CLOSE COMBAT-LIGHT, CLOSE COMBAT-HEAVY, FIRE SUPPORT, AIR DEFENSE, AVIATION, INTELLIGENCE AND ELECTRONIC WARFARE, COMBAT SUPPORT-ENGINEERING AND NINE WARFARE, COMBAT SUPPORT-NUCLEAR BIOLOGICAL AND CHEMICAL, COMBAT SERVICE SUPPORT, BATTLEFIELD THEATRE NUCLEAR WARFARE, FORCE DEVELOPMENT), AND AN INDEX OF FUNCTIONAL CATEGORIES (MISSION PERFORMANCE, PHYSIOLOGICAL AND PSYCHOLOGICAL STRESS, MATERIEL EVALUATION, COMPUTER MODELING, BACKGROUND INFORMATION), AND A LIST OF DOCUMENTS DETERMINED NOT APPLICABLE TO THE COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT STUDY.

TITLE: SYMPOSIUM ON DETECTION, WARNING, AND IDENTIFICATION
DATA SOURCE NO: CRDC-SP-84022, ADC037299
AUTHOR: R.M. GAMSON
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/02/01

COMMENTS: CONTAINS ALL MATERIAL FROM A SYMPOSIUM COVERING THE ENTIRE AREA OF DETECTION, WARNING, AND IDENTIFICATION. DISCUSSIONS ON AUTOMATIC POINT DETECTORS, MANUAL DETECTORS, AND AUTOMATIC REMOTE DETECTORS WERE INCLUDED. ALSO DISCUSSED WERE CURRENT DEVELOPMENT STATUS, MODE OF OPERATION, SENSITIVITY, AND CONCEPT OF USE FOR THE VARIOUS DETECTION SYSTEMS. OTHER TOPICS INCLUDED INFRARED TECHNOLOGY, LABORATORY PROCEDURES, RECONNAISSANCE, AIRBORNE DETECTORS, AND TOXINS.

TITLE: COMBAT MAINTENANCE CAPABILITY: EXECUTIVE SUMMARY,
DATA SOURCE NO: AFHRL-TR-85-35, ADB097830
AUTHOR: J.M. DUNIGAN, G.E. DICKEY, M.J. BORST, D. NAVIN, D.P. PARHAM, R.E. WEIMER, T.M. MILLER
ORIGINATING ORG: GENERAL DYNAMICS, FORT WORTH, TX FOR US AIR FORCE HUMAN RESOURCES LABORATORY (AFHRL), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/12/01

COMMENTS: THIS EXECUTIVE SUMMARY DESCRIBES THE RESULTS OF A TWO-YEAR STUDY TO DEVELOP A METHODOLOGY FOR SYSTEMATICALLY AND CRITICALLY EXAMINING THE DIFFERENCE BETWEEN CURRENT PEACETIME MAINTENANCE OF MODERN COMBAT AIRCRAFT AND FUTURE COMBAT MAINTENANCE. FIVE AREAS WERE STUDIED IN DETAIL: AIRCRAFT BATTLE DAMAGE REPAIR (ABDR), CHEMICAL WARFARE EFFECTS, ALTERNATE MAINTENANCE PROCEDURES, ORGANIZATIONS, AND WARTIME CRITICAL TASKS. THE METHODOLOGY DEVELOPED INCLUDED THE FOLLOWING COMPUTER MODELS: TSAR, TSARINA, AND DYNA-METRIC.

TITLE: TASK FORCE STUDY ON CB HAZARD LEVELS
DATA SOURCE NO: CRDC-SP-84032, ADC037165
AUTHOR: R.M. GAMSON, G. CONDON, L. DAVIS, H. CARLON
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 85/02/01

COMMENTS: THIS DOCUMENT DESCRIBES THE FINDINGS OF A TASK FORCE WHICH WAS ASSEMBLED TO CREATE A CHEMICAL/BIOLOGICAL (CB) HAZARD LEVEL DATA BANK. DATA GAPS ARE IDENTIFIED. THE LITERATURE SURVEY COVERED PHYSICAL TOXICOLOGICAL PROPERTIES OF AGENTS INCLUDING ADSORPTION AND ADSORPTION OF AGENTS IN PAINTED SURFACES AND ROUTES OF ENTRY FOR VARIOUS AGENTS. IN ADDITION, THIS DOCUMENT DETAILS FOREIGN PARTICIPANTS IN THE CHEMICAL DEFENSE AREA.

TITLE: AIRCREW NBC GLOVES
DATA SOURCE NO: PML-1985-10
AUTHOR: J. MEDEMA
ORIGINATING ORG: PRINS MAURITS LABORATOIUM TNO, RIJSWIJK, THE NETHERLANDS
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 85/02/01

COMMENTS: EVALUATION OF NEW MATERIALS AND NEW GLOVE DESIGNS FOR AIRCREW NBC PROTECTION GLOVES. REPORT CONTAINS SOME INFORMATION ON EXPECTED CHEMICAL CHALLENGE FOR GLOVE DESIGN CRITERIA.

TITLE: CHEMICAL OPERATIONS IN URBAN TERRAIN
DATA SOURCE NO: CRDC-CR-84114
AUTHOR: G. SCHECTER, R. ELLEFSEN, F.Y. SORRELL, D.L. SHEARER
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, DURHAM, NC FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 85/03/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO DEVELOP A MORE SYSTEMATIC BASIS FOR PREDICTING THE EFFECTIVENESS OF CHEMICAL WARFARE (CW) OPERATIONS IN URBAN TERRAIN AND FOR IMPROVING CW DEFENSIVE AND RETALIATORY CAPABILITIES. A CLASSIFICATION SYSTEM WAS DEVELOPED TO DESCRIBE A BUILDING'S SUSCEPTABILITY TO CHEMICAL ATTACK. WORK WAS ALSO DONE TO IDENTIFY LIMITATIONS OF MODELS AND DATA GAPS FOR REPRESENTING AGENT DISPERSION INTO, THROUGH, AND AROUND BUILT-UP AREAS.

TITLE: US AIR FORCE FOOD SERVICE IN AN NBC ENVIRONMENT VOLUME II: RECOMMENDATIONS FOR FOOD SERVICE OPERATIONS IN AN NBC ENVIRONMENT
DATA SOURCE NO: NATICK/TR-85/055L
AUTHOR: M.L. HERZ, J.H. LITCHFIELD, W.T. MCCOMIS, A.H. SAMUEL
ORIGINATING ORG: BATTELLE-COLUMBUS LABORATORIES, COLUMBUS, OH FOR US ARMY NATICK RESEARH AND DEVELOPMENT CENTER, NATICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/01

COMMENTS: THIS DOCUMENT PROVIDES PROPER FOOD SERVICE PROCEDURES AND PERSONNEL RESPONSIBILITIES IN A NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) ENVIRONMENT. THE PROCEDURE GUIDE INTRODUCTION GIVES BASIC DEFINITIONS OF ALARM CONDITIONS AND PROPERTIES OF NBC AGENTS. THE BODY OF THE GUIDE TAKES INTO CONSIDERATION FIXED, SEMI-HARDENED AND ALTERNATIVE FOOD SERVICE FACILITIES. TOPICS INCLUDED IN THE APPENDIX ARE: DETAILED TASK FLOW CHARTS, DETAILED DESCRIPTION OF M256 CHEMICAL AGENT KIT AND ABC-M8 VGH CHEMICAL AGENT DETECTOR PAPER, AND A DETAILED SUMMARY CHART OF SURFACES AND METHODS OF DECONTAMINATION.

TITLE: TESTING OF ENTRY/EXIT PROCEDURES FOR THE XM20 SIMPLIFIED COLLECTIVE PROTECTION EQUIPMENT (SCPS)
DATA SOURCE NO: CRDC-TR-85008, ADB095495
AUTHOR: W.K. BLEWETT
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/09/01

COMMENTS: THIS REPORT DESCRIBES FIVE SERIES OF TESTS RUN AT THE US ARMY CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC) WITH VAPOR SIMULANTS TO DETERMINE THE EFFECTIVENESS OF ENTRY/EXIT PROCEDURES FOR THE XM20 SCPE. THIS STUDY CONCLUDES THAT CHEMICAL CONTAMINATION IS BROUGHT INTO THE SHELTER BY THE ADSORPTION AND DESORPTION OF VAPOR ON FATIGUE GARMENTS AFTER THE NBC OVERGARMENT IS REMOVED. DATA ARE PRESENTED ON SIMULANT VAPOR CONCENTRATIONS INTRODUCED INTO THE SHELTER.

TITLE: VOICE COMMUNICATIONS EFFECTIVENESS OF THE ALL-PURPOSE MCU-2/P CHEMICAL DEFENSE PROTECTIVE MASK
DATA SOURCE NO: AAMRL-TR-85-050, ADA161031
AUTHOR: C.W. NIXON, W.H. DECKER
ORIGINATING ORG: ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/08/01

COMMENTS: THE VOICE COMMUNICATIONS EFFECTIVENESS OF THE ALL-PURPOSE MCU-2/P CHEMICAL DEFENSE PROTECTION MASK FOR USE BY ALL GROUND PERSONNEL WAS EVALUATED IN A LABORATORY STUDY. SPEECH INTELLIGIBILITY WAS MEASURED FOR THE MCU-2/P UNDER FACE-TO-FACE COMMUNICATIONS CONDITIONS AND WHEN INTERFACED WITH A COMMERCIAL TELEPHONE HANDSET-MICROPHONE UNIT IN SELECTED NOISE ENVIRONMENTS THAT RANGED FROM 77 DB TO 115 DB SOUND PRESSURE LEVEL (SPL). THE MASK AND HOOD EXHIBITED GOOD SPEECH INTELLIGIBILITY FOR ALL COMMUNICATION CONFIGURATIONS IN THE 77 DB NOISE CONDITION. HOWEVER, VOICE COMMUNICATIONS WERE NOT SATISFACTORY FOR HIGHER NOISE LEVELS. THE NOISE LEVELS SIMULATED THE FAR-FIELD NOISE ENVIRONMENT OF AN F-15A.

TITLE: PYRIDOSTIGMINE BROMIDE: A PRE-EXPOSURE ANTIDOTE FOR SPECIFIC CHEMICAL WARFARE NERVE AGENTS--A CONDENSED REVIEW FOR THE AEROMEDICAL SPECIALIST
DATA SOURCE NO: USAFSAM-TR-85-15, ADA164365
AUTHOR: J.E. WHINNERY
ORIGINATING ORG: USAF SCHOOL OF AEROSPACE MEDICINE, BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/01

COMMENTS: PYRIDOSTIGMINE BROMIDE (AN ACETYLCHOLINESTERASE INHIBITOR WHICH IS BEING CONSIDERED FOR USE AS A PRE-EXPOSURE ANTIDOTE FOR PREVENTION OF THE UNDESIRABLE EFFECTS OF SPECIFIC CHEMICAL WARFARE NERVE AGENTS) HAS SEVERAL PHYSIOLOGICAL EFFECTS ON THE BODY WHEN TAKEN SYSTEMICALLY. THIS RESEARCH HAS BEEN LIMITED TO THE PHARMACOLOGIC-PHYSIOLOGIC EFFECTS WHICH POSE DISTINCT THEORETICAL PROBLEMS TO THE AVIATION COMMUNITY. POTENTIAL SIDE EFFECTS ARE LISTED.

TITLE: AN ANALYSIS OF MAINTENANCE SHIFT POLICIES AND COLLECTIVE PROTECTION SHELTER PROCESSING PROCEDURES IN A CHEMICAL ENVIRONMENT
DATA SOURCE NO: AFIT/GLM/LSM/85S-70, ADB097062
AUTHOR: S.J. SCHUMACHER
ORIGINATING ORG: AIR FORCE INSTITUTE OF TECHNOLOGY, WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/09/01

COMMENTS: THIS THESIS RECOMMENDS IMPROVEMENTS IN THE SCHEDULING AND PROCESSING FLIGHTLINE MAINTENANCE PERSONNEL THROUGH THE SURVIVABLE COLLECTIVE SHELTER (SCPS-2). A SIX-TEAM SCHEDULE, AN EIGHT-TEAM SCHEDULE, AND THE USAF TACTICAL WARFARE CENTER (USAFTAWC) RECOMMENDED SCHEDULE WERE EVALUATED WITH WORKFORCE SIZES OF 192, 240, AND 312 PERSONNEL. THE EFFECTS OF 0, 40, AND 80 PERCENT OF THE PERSONNEL USING USAFTAWC EXPEDIENT PROCESSING PROCEDURE WERE ALSO TESTED. THE

SYSTEM IS MODELED USING SLAM (SIMULATION LANGUAGES FOR ALTERNATIVE MODELING), TRACKING SEVEN PERFORMANCE MEASURES: PROCESSING RATES AND TIMES, INGRESS AND EGRESS QUEUE TIMES, AND THE TIME-WEIGHTED AVERAGE OF NUMBER OF PEOPLE WORKING. TABLES AND ANALYSES ARE PROVIDED.

TITLE: PHYSICAL FITNESS AS A MODERATOR OF COGNITIVE WORK CAPACITY AND FATIGUE ONSET UNDER SUSTAINED COMBAT-LIKE OPERATIONS
DATA SOURCE NO: ARI-TR-687, ADA160417
AUTHOR. R.J. PLEBAN, D.A. THOMAS, H.L. THOMPSON
ORIGINATING ORG: ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES, FORT BENNING, GA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/01

COMMENTS: THE RESULTS OF THE STUDY SUGGEST THAT FITNESS MAY ATTENUATE DECREMENTS IN COGNITIVE WORK CAPACITY FOR CERTAIN TASKS REQUIRING PROLONGED MENTAL EFFORT, PARTICULARLY AS THE CUMULATIVE EFFECTS OF SLEEP LOSS AND OTHER STRESSORS BEGIN TO MOUNT. FITNESS DID NOT ENHANCE THE RECOVERY PROCESS WITH RESPECT TO COGNITIVE WORK CAPACITY, AND ACTUALLY APPEARED TO HINDER RECOVERY FROM FATIGUE.

TITLE: EFFECTIVENESS OF AN AIR-COOLED VEST USING SELECTED AIR TEMPERATURE AND HUMIDITY COMBINATIONS
DATA SOUURCE NO: M5/86, ADA162026
AUTHOR: N.A. PIMENTAL, K.M. COSIMINI, M.N. SAWKA, C.B. WENGER
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/11/01

COMMENTS: THIS REPORT EVALUATES THE EFFECTIVENESS OF AN AIR-COOLED VEST IN REDUCING THERMAL STRAIN WHEN SUPPLIED WITH FIVE DIFFERENT DRY, BULB AND DEW POINT TEMPERATURE COMBINATIONS. THE VEST WAS SHOWN TO REDUCE THERMAL STRAIN AND ALSO EXTENDED ENDURANCE TIME OF SOLDIERS IN PROTECTIVE CLOTHING.

TITLE: STATISTICAL ASSESSMENT OF THE XM40 MASKS AND US-10 RESPIRATOR
DATA SOURCE NO: BRL-MR-3485, ADA163102
AUTHOR: L.L. CRAWFORD, J.C. FORD
ORIGINATING ORG. BALLISTIC RESEARCH LABORATORY (BRL), ABERDEEN PROVING GROUND, MD

CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/01

COMMENTS: THIS DOCUMENT IS AN ANALYSIS OF DATA OBTAINED FROM THE ENGINEERING DESIGN TEST OF THE XM40 SERIES OF PROTECTIVE MASKS AND BRITISH US-10 RESPIRATOR. INHALATION TEST, EXHALATION TEST, LENS TEST AND DIOCTAL PHTALATE LEAKAGE TEST WERE CONDUCTED TO SEE IF THE MASK WERE RELIABLE ENOUGH FOR THE NEXT PHASE OF DEVELOPMENT.

TITLE: ANNOTATED BIBLIOGRAPHY OF PUBLICATIONS DEALING WITH OCCUPATIONAL HEALTH AND MEDICAL INFORMATION SYSTEMS, COST ANALYSIS PROCEDURES, EVALUATION METHODOLOGY, AND RELATED LEGAL ISSUES
DATA SOUURCE NO: ADA156650
ORIGINATING ORG: R-K RESEARCH AND SYSTEM DESIGN, MALIBU, CA FOR NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND, BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/16

COMMENTS: IT IS A BIBLIOGRAPHY PRESENTED TO SHOW THE WIDE RANGE OF RELEVANT SUBJECT MATTER DEALING WITH THE PROJECT OF TESTING AND EVALUATING OF THE NAVAL OCCUPATIONAL HEALTH INFORMATION MANAGEMENT SYSTEM. SUFFICIENT DETAIL IS GIVEN ON EACH ENTRY SO DECISIONS CAN BE MADE WHETHER TO OBTAIN THE ARTICLE.

TITLE: EFFECT OF HEAT AND CHEMICAL PROTECTIVE CLOTHING ON COGNITIVE PERFORMANCE
DATA SOURCE NO: USARIEM-M-4/86, ADA162001
AUTHOR: B.J. FINE, J.L. KOBRICK
ORIGINATING ORG: US ARMY RESEARCH INSTITU ENVIRONMENTAL MEDICINE, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/11/01

COMMENTS: STUDY EXAMINED EFFECTS OF HEAT ON SUSTAINED COGNITIVE PERFORMANCE OF SEDENTARY SOLDIERS CLAD IN CHEMICAL PROTECTIVE CLOTHING. TWENTY MALES TRAINED FOR TWO WEEKS ON SELECTED MILITARY TASKS. THEN THEY PERFORMED THE TASKS FOR 7-HOUR PERIODS ON FOUR SUCCESSIVE DAYS IN HOT AND NORMAL CONDITION, WITH AND WITHOUT PROTECTIVE CLOTHING. AFTER 4-5 HOURS IN THE HEAT WEARING PROTECTIVE CLOTHING, THE COGNITIVE PERFORMANCE OF THE GROUP BEGAN TO DETERIORATE MARKEDLY. BY THE END OF 7 HOURS OF HEAT, INCREASES IN GROUP ERROR ON INVESTIGATOR-PACED TASKS RANGED FROM 17 PERCENT TO 23 PERCENT OVER CONTROL CONDITIONS. VIRTUALLY ALL OF THE DECREMENTS WERE DUE TO INCREASES IN ERROR OF OMISSION. THE PRODUCTIVITY OF THE GROUP ON A SELF-PACED TASK (MAP PLOTTING) DIMINISHED BY APPROXIMATELY 40 PERCENT FROM CONTROL CONDITIONS AFTER 6 HOURS IN THE

HEAT IN PROTECTIVE CLOTHING; ACCURACY OF PLOTTING WAS NOT MARKEDLY AFFECTED.

TITLE: SUBSTITUTED ATROPINES AS NERVE AGENT ANTIDOTES
DATA SOURCE NO: ADB09925
AUTHOR: E.A. NODIFF, T. TAKAMURA, M. WADA, A. KATO, E.H. CHEN, K. TANABE, L. SMITH
ORIGINATING ORG: FRANKLIN RESEARCH CENTER, PHILADELPHIA, PA FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT CENTER, FREDERICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/07/01

COMMENTS: FRANKLIN RESEARCH CENTER (FRC) ESSAYED TO OPTIMIZE THE THERAPEUTIC INDEX OF ATROPINE, AS A NERVE AGENT ANTIDOTE, VIA THE SYSTEMATIC SYNTHESIS OF SIMPLE DERIVATIVES OR ATROPINE. THE FIRST PART OF THEIR RESEARCH WAS DEVOTED TO DEVELOPING A 2-STEP PROCEDURE FOR THE SYNTHESIS OF ATROPINE. THIS METHOD ENABLED FRC TO PROVIDE USAMRDC WITH 19 ATROPINES, 2 ATROPINE ANALOG, 23 TROPINE PHENYLACETATES, AND 6 ANALOGS OF THE TROPINE PHENYLACETATES. INCLUDED IN THIS REPORT ARE SCHEMATICS OF THE EYNTHESIZING STEPS, EXPERIMENTAL METHODS, AND APPENDICES PROVIDING ACTIVITY GRAPHS.

TITLE: EFFECT OF WEARING NBC PROTECTIVE CLOTHING IN THE HEAT ON SIGNAL DETECTION OVER THE VISUAL FIELD
DATA SOURCE NO: USARIEM-T7/85
AUTHOR: J.L. KOBRICK, L.A. SLEEPER
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/02/01

COMMENTS: SENSITIVITY FOR DETECTION OF VISUAL SIGNALS DISTRIBUTED AT VARIOUS LOCATIONS THROUGHOUT THE VISUAL FIELD WAS STUDIED IN 16 MALE SUBJECTS DURING DEGREES OF AMBIENT HEAT EXPOSURE (91 F/61 PERCENT RH; 70 F/35 PERCENT RH; 55 F/35 PERCENT RH), IN COMBINATION WITH AND WITHOUT WEARING OF THE ARMY NBC PROTECTIVE CLOTHING SYSTEM (MOPP IV). RESPONSE TIME FOR SIGNAL DETECTION INCREASED SYSTEMATICALLY AND SIGNIFICANTLY WITH PERIPHERALIZATION OF STIMULUS LOCATIONS, WAS MOST IMPAIRED IN THE SUPERIOR AND INFERIOR VISUAL FIELD WAS, AND LEAST AFFECTED ALONG THE HORIZONTAL AXIS AREA. BOTH HEAT AND HEAT PLUS MOPP IV CONDITIONS PRODUCED HIGHLY SIGNIFICANT SYSTEMATIC INCREASES IN RESPONSE TIME TO ALL SIGNALS; THE WORST PERFORMANCE OCCURRED UNDER THE HEAT PLUS MOPP IV COMBINATION.

TITLE: IMMUNOLOGIC AND HEMATOLOGIC PERTURBATIONS IN MODELS OF COMBINED INJURY
DATA SOURCE NO: NMRI-85-25, ADA157826
AUTHOR: D.F. GRUBER, T.J. MACVITTIE, O.R. PAVLOVSKIS, R.I., WALKER, J.J. CONKLIN
ORIGINATING ORG: NAVAL MEDICAL RESEARCH INSTITUTE, BETHESDA, MD FOR DEPARTMENT OF THE NAVY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/04/01

COMMENTS: A REVIEW OF THE LITERATURE ON MODELS OF COMBINED INJURY AND ANERGIC CONDITIONS OCCURRING AFTER TRAUMA IS DESCRIBED. TOPICS INCLUDE THE EFFECTS OF WHOLE BODY IRRADIATION, THERMAL INJURY, AND INFECTION (SEPSIS) ON BLOOD AND IMMUNE SYSTEMS. AUTHORS CONCLUDE IMMUNOMODULATORY STEPS SHOULD BE IMPLEMENTED AS SOON AFTER TRAUMA AS POSSIBLE.

TITLE: RECONNAISSANCE, DETECTION, AND IDENTIFICATION MASTER PLAN
DATA SOURCE NO: CRDC-CR-85032, ADC037732
AUTHOR: T.P. KARPETSKY, M. D'ANDRIES, J.P. CARRICO, R.C. FIELD, J.P. GILMAN, R.W. HUTCHINSON, M.I. HUTTON, R.A. MACKAY, K.R. PHELPS, A. SILVESTRI, C.C. SMITH, F.P. WARD, J.H. ZARZYCKI
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/08/01

COMMENTS: A MASTER PLAN TO FIELD RECONNAISSANCE, DETECTION, AND IDENTIFICATION (RDI) CAPABILITIES TO DETECT CHEMICAL, BIOLOGICAL AND TOXIN (CBT) AGENTS, BOTH POINT AND STANDOFF ELEMENTS. THIS DOCUMENT PROVIDES DESCRIPTIONS OF CURRENTLY FIELDED AND DEVELOPMENTAL DETECTORS AS WELL AS PROJECTED PERFORMANCES OF FUTURE DETECTORS BASED ON A VARIETY OF TECHNOLOGIES. CBT AGENTS ARE DESCRIBED WITH TOXICITY DATA PROVIDED. AS THIS DOCUMENT WAS THE PRODUCT OF A LARGE NUMBER OF AUTHORS, THE QUALITY VARIES.

TITLE: THE THERMAL RESISTANCE OF THE CF CW SUIT
DATA SOURCE NO: DREO-TN-85-22, ADA162455
AUTHOR: B. FARNWORTH, S.D. LIVINGSTONE
ORIGINATING ORG: DEFENCE RESEARCH ESTABLISHMENT OTTAWA (DREO), OTTAWA, ONTARIO, CANADA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS DOCUMENT GIVES THE CONCLUSIONS OF THE TESTING OF A MODEL THAT PREDICTS THERMAL RESISTIVITY IN THE CANADIAN FORCES CHEMICAL WARFARE (CW) SUIT. THE MODEL IS BASED ON MEASURED RESISTANCES OF THE FABRIC LAYERS AND ESTIMATED VALUES FOR INTERNAL AND EXTERNAL STILL AIR LAYERS. THIS MODEL WAS COMPARED TO ACTUAL PHYSIOLOGICAL TESTING AND FOUND TO MAKE THE DESIRED PREDICTIONS. IT WAS NOTED THAT THE RESULTS SUGGEST MODEL CALCULATIONS COULD BE MADE TO GIVE SENSIBLE HEAT LOSS IN A VARIETY OF CONDITIONS AND THE EVAPORATIVE HEAT LOSS WITH SOME CONFIDENCE.

TITLE: DATA BOOK ON TYPE CLASSIFIED/STANDARD CHEMICAL AGENTS, WEAPONS AND DEFEENSE MATERIEL
DATA SOURCE NO: CRDC-SP-85009, ADB095851
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/09/01

COMMENTS: THIS DOCUMENT IS INTENDED AS A READY REFERENCE FOR PERSONNEL WHOSE DUTIES INVOLVE THE USE AND IDENTIFICATION OF CHEMICAL MATERIAL ADOPTED BY THE US ARMY CHEMICAL RESEARCH AND DEVELOPMENT CENTER. THE ITEMS ARE GROUPED, CATEGORIZED AND LISTED BY OPERATIONAL FUNCTIONAL MISSION. THE LISTINGS INCLUDE THE CODES ASSIGNED TO EACH ITEM BY THE ORGANIZATION WHICH ACQUIRED IT. THE ITEMS ARE NOT DESCRIBED. REPORT SUPERSEDES CRDC-SP-84016, MAY 1984.

TITLE: DEGRADED EFFECTIVENESS STUDIES FOR MAJOR DEVELOPMENTAL SYSTEMS AND HIGH-DENSITY ITEMS
DATA SOURCE NO: BRL-TR-2680, ADA160475
AUTHOR: J.J. BALDAUF, C.H. WICK
ORIGINATING ORG: US ARMY BALLISTIC RESEARCH LABORATORY, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/09/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO BETTER UNDERSTAND THE DEGRADED EFFECTIVENESS CAUSED BY SOLDIERS WEARING CHEMICAL PROTECTIVE CLOTHING AT THE MOST PROTECTIVE LEVEL, MISSION ORIENTED PROTECTIVE POSTURE (MOPP) LEVEL IV. DEGRADED EFFECTIVENESS FACTORS WERE OBTAINED FOR 45 DIFFERENT TASKS BY USING THE BRL CHEMICAL PROTECTION DEGRADATION MODEL. RESULTS FROM THE MODEL WERE GIVEN AND SEVERAL MODIFICATIONS WERE SUGGESTED FOR THE MOPP ENSEMBLE.

TITLE: GROUNDCREWS TEST CHEMICAL WARFARE ENSEMBLE WITH AND WITHOUT LIQUID-CONDITIONED GARMENTS
DATA SOURCE NO: USAFSAM-TR-85-24, ADB096285
AUTHOR: J.C. MILLER, D.C. BOONE, S.M. ROKIEKI, K.G. CORNUM, M. DAVIS, E. COOK, H. BATES, A.A. BERRY
ORIGINATING ORG: USAF SCHOOL OF AEROSPACE MEDICINE, BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/01

COMMENTS: F-4C COMBAT TURNS WERE PERFORMED BY THREE MUNITIONS AND TWO MAINTENANCE PERSONNEL, WEARING THE NEAR-TERM CHEMICAL WARFARE DEFENSE ENSEMBLE (CWDE), WITH AND WITHOUT LIQUID-CONDITIONED GARMENT (LCG), IN A MODERATE ENVIRONMENT--ONE WHICH IMPOSED NO EXTERNAL HEAT STRESS. THE TURNS INVOLVED AIRCRAFT INSPECTION REFUELING, DRAG-CHUTE RLPLACEMENT, AND THE UPLOAD OF FOUR AIM-7 (SPARROW) MISSILES. AMBIENT TEMPERATURES WERE ABOUT 24 C DRY BULB, 22.5 C WET BULB, AND 25 C BLACK GLOBE. TASK PERFORMANCE TIMES IN THE CWDE WERE NOT AFFECTED BY LCG, AND WERE WITHIN COMBAT TIME LIMITS. SUBJECTIVE RATINGS OF FATIGUE AND STRESS HORMONE (NOREPINEPHRINE) EXCRETION RATE WERE RELIABLY REDUCED BY LCG WEAR. THESE TESTS WERE DESIGNED FOR LCG WEARABILITY, AND NOT THERMAL EFFECTS.

TITLE: PHYSIOLOGICAL TESTING OF EXPERIMENTAL CHEMICAL WARFARE AGENT PROTECTIVE PATIENT WRAPS
DATA SOURCE NO: USARIEM-T-2/86, ADA166639
AUTHOR: L.A. STEPHENSON, B.S. CADARETTE, K.L. SPECKMAN
ORIGINATING ORG: US ARMY RESEARCH OF ENVIRONMENTAL MEDICINE, NATICK MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/10/01

COMMENTS: A PHYSIOLOGICAL COMPARISON OF SUBJECT RESPONSES WERE RECORDED DURING 2 HOURS OF ENCAPSULATION IN THE CHEMICAL WARFARE AGENT PROTECTIVE PATIENT WRAP CURRENTLY BEING PROCURED (SIX PROTOTYPES DEVELOPED BY THE US AND A NEWLY DEVELOPED UK PATIENT WRAP) IN A WARM ENVIRONMENT. CORE TEMPERATURE (RECTAL) AND CONCENTRATION WITHIN THE WRAP WERE MEASURED EVERY MINUTE. HEART RATE EVERY 5 MINUTES. WEIGHT LOSS WAS MEASURED BEFORE AND AFTER EACH EXPERIMENT. TABLES CONTAINING COMPARATIVE FINDINGS ARE PRESENTED IN THIS REPORT.

TITLE: FIGHTER EMPLOYMENT WEARING CHEMICAL WARFARE DEFENSE EQUIPMENT TD&E ANNEX B (F-15)
DATA SOURCE NO: ADC036726
AUTHOR: T.S. SWAM
ORIGINATING ORG: TACTICAL AIR WARFARE CENTER, EGLIN AFB, FL
CLASSIFICATION: CONFIDENTIAL

DOCUMENT DATE: 85/03/29

COMMENTS: THIS DOCUMENT DISCUSSED THE ABILITY OF F-15 PILOTS TO ACCOMPLISH COMBAT TACTICS WHILE WEARING THE CURRENT AIRCREW CHEMICAL WARFARE DEFENSE ENSEMBLE (CWDE). THE PURPOSE OF THIS STUDY WAS TO DETERMINE OPERATIONAL GUIDELINES FOR COMBAT TACTICS IN THE F-15 WITH PILOTS WEARING THE CURRENT CWDE. PROBLEMS INCLUDED MASK SLIPPAGE, FACE PLATE FOGGING, REDUCED FIELD OF VIEW, RESTRICTED BREATHING AND THERMAL STRESS. CONTINUED TRAINING IN THE CWDE IS NECESSARY.

TITLE: CLASSIFIED TITLE
DATA SOURCE NO: CDE-TP-396, ADC953471
AUTHOR: P. BLAKE, R.I. GLEADLE, D.C. PARKES, R.G. WHITE
ORIGINATING ORG: CHEMICAL DEFENCE ESTABLISHMENT, PORTON DOWN, ENGLAND
CLASSIFICATION: RESTRICTED
DOCUMENT DATE: 85/01/01

COMMENTS: THE DATA FROM 76 SUBJECTS RECEIVING PYRIDOSTIGMINE BROMIDE 30 MG ORALLY IN A VARIETY OF PHARMACOKINETIC AND PHARMODYNAMIC STUDIES ARE PRESENTED. PYRIDOSTIGMINE BROMIDE, GIVEN IN A DOSE OF 30 MG ON AN 8-HOUR BASIS WAS FOUND TO PRODUCE A BLOOD CHOLINESTERASE INHIBITION PROFILE GREATER THAN 15 PERCENT FOR THE MAJORITY OF SUBJECTS, THROUGHOUT THE 8-HOUR DOSING INTERVAL AND WAS FREE OF SIGNIFICANT ADVERSE EFFECTS. (HUMAN SUBJECTS WERE USED FOR THESE STUDIES). THESE DATA CAN BE FOUND IN OTHER UNCLASSIFIED SOURCES.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS (SAWE) PROOF-OF-CONCEPT DEVELOPMENT ACTIVITIES FOR CHEMICAL TRAINING DEVICES
DATA SOURCE NO: JPL-D-2095
AUTHOR: D.C. GRIFFIN, W.L. DOWLER, S.E. ASPLUND, N.W. FERRARO
ORIGINATING ORG: JET PROPULSION LABORATORY, PASADENA, CA FOR NAVAL TRAINING CENTER, ORLANDO, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/04/26

COMMENTS: THE OBJECTIVES OF THIS WORK WERE TO DEVELOP A TRAINING MASK AND PERSISTENT CHEMICAL AGENT SIMULANT TO THE DEGREE NECESSARY FOR THE ARMY TO DETERMINE IF THE CONCEPTS WERE SUFFICIENTLY VALID TO WARRENT FURTHER WORK, AND ULTIMATELY TO PROVIDE TRAINING DEVICES WITH THE REALISM NECESSARY FOR EFFECTIVE TRAINING, WITH THE GOAL OF SIGNIFICANTLY REDUCING BATTLEFIELD CASUALTIES. THIS IS AN EXCELLENT STUDY, VERY THOROUGH AND WELL WRITTEN.

TITLE: DEVELOPMENT OF IMPROVED PERMEABLE AND IMPERMEABLE MATERIAL FOR CHEMICAL PROTECTIVE CLOTHING
DATA SOURCE NO: NATICK/TR-85/025, ADB094777
AUTHOR: D.W. KIM, D.E. STUETZ, H.H. GEORGE
ORIGINATING ORG: CELANESE RESEARCH COMPANY, SUMMIT, NJ FOR US ARMY NATICK RESEARCH AND DEVELOPMENT CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/01

COMMENTS: DISCUSSES EFFORTS TO IDENTIFY TEXTILE MATERIALS AND FABRIC CONSTRUCTIONS PROVIDING FOR IMPROVED CHEMICAL PROTECTIVE CLOTHING. OBJECTIVES WERE TO DEVELOP FABRIC LAMINATES THAT ARE AIR PERMEABLE AND SORPTIVE AND/OR REACTIVE TO CHEMICAL AGENTS TO OVERCOME DRAWBACKS OF CURRENT CHEMICAL PROTECTIVE CLOTHING SUCH AS HEAT STRESS INDUCEMENT, BULKINESS, AND NON-REUSABILITY. SAMPLES OF SELECTED FABRIC MATERIAL COMBINATIONS WERE CONSTRUCTED AND SUBJECTED TO TESTS FOR EVALUATION OF THEIR PERMEABILITY AND SORPTIVE AND REACTIVE PROPERTIES. A MATERIAL WAS IDENTIFIED WHICH MEETS ADSORPTION SPECIFICATIONS BUT SLIGHTLY EXCEEDS WEIGHT LIMITATIONS. FURTHER STUDIES WERE RECOMMENDED.

TITLE: EFFECTS OF ATROPINE DOSAGE LEVELS ON MILITARY MAP PLOTTING
DATA SOURCE NO: T1/85
AUTHOR: J.L. KOBRICK
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/01/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO DETERMINE THE EFFECTS OF SEVERAL ATROPINE DOSAGE LEVELS (0, 0.5, 1, 2, 3, 4 MG) COMBINED WITH AMBIENT HEAT EXPOSURE (40 DEGREES CELCIUS, 40 PERCENT RELATIVE HUMIDITY) ON THE ABILITY OF SOLDIERS TO PERFORM THE TASK OF PLOTTING SECTOR-GRID COORDINATE LOCATIONS ON MILITARY MAPS. THERE WERE NO DIFFERENCES OBSERVED IN TASK PERFORMANCE BETWEEN DRUG TEST DAYS AND CONTROL DAYS, EITHER IN NUMBER OF TARGETS PLOTTED OR IN MEAN ERRORS. RESULTS APPEAR TO SUPPORT THE FEASIBILITY OF ATROPINE USE AS A CHEMICAL DEFENSE ANTIDOTE FOR COMBAT OPERATIONS.

TITLE: CLASSIFIED TITLE
DATA SOURCE NO: INM REPORT 16/85
AUTHOR: A.C. PARROTT, N.A. PINDER
ORIGINATING ORG: INSTITUTE OF NAVAL MEDICINE, HAMPSHIRE, UNITED KINGDOM
CLASSIFICATION: RESTRICTED
DOCUMENT DATE: 85/11/01

COMMENTS: THIS REPORT DESCRIBES A PRETREATMENT/ANTIDOTAL DRUG STUDY CONDUCTED, COMPLETE WITH METHODOLOGY AND RESULTS. ALL PAGES ARE RESTRICTED.

TITLE: A REVIEW OF INTERNATIONAL TERRORISM IN 1984
AUTHOR: D. BAL, A. KURZ, A. MERARI, T. PRAT, D. YAL
ORIGINATING ORG: JAFFEE CENTER FOR STRATEGIC STUDIES (JCSS), TEL AVIV, ISRAEL
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/01

COMMENTS: THIS REPORT SURVEYS INTERNATIONAL TERRORISM IN 1984. IT CONTAINS STATISTICAL DATA AS WELL AS A DESCRIPTION AND ASSESSMENT OF MAJOR TRENDS. AN APPENDIX CONTAINS A CHRONOLOGY OF SIGNIFICANT TERRORIST EVENTS IN 1984. THE DATA BASE RELIES MAINLY ON INFORMATION FROM THE MASS (PUBLIC) COMMUNICATIONS MEDIA.

TITLE: PREDICTION MODELING OF PHYSIOLOGICAL RESPONSES AND HUMAN PERFORMANCE IN THE HEAT
DATA SOURCE NO: USARIEM-M-1/86, ADA160913
AUTHOR: K.B. PANDOLF, L.A. STROSCHEIN, L.L. DROLET, R.R. GONZALEZ, M.N. SAWKA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/09/01

COMMENTS: THIS DOCUMENT DISCUSSED THE PREDICTIVE IMPORTANCE OF PHYSICAL FITNESS AND STATE OF HYDRATION. AN HP41CV CALCULATOR WAS PROGRAMMED WITH EQUATIONS USED TO DEVELOP A HEAT STRESS MODEL FOR PREDICTING SOLDIER PERFORMANCE TO WORK, CLOTHING, AND ENVIRONMENT. THE INPUTS FOR THE EQUATIONS ARE BODY TEMPERATURE AND SWEAT LOSS WHICH WILL PRODUCE THE FOLLOWING OUTPUTS: EXPECTED PHYSICAL WORK/REST CYCLE, MAXIMUM SINGLE WORK TIME, AND ASSOCIATED WATER REQUIREMENTS. THE PREDICTED TEMPERATURE PATTERNS WERE DISCOVERED TO BE IN GOOD AGREEMENT WITH EXPERIMENTAL OBSERVATIONS.

TITLE: SOLDIER PERFORMANCE IN CONTINUOUS OPERATIONS: ADMINISTRATIVE MANUAL FOR A BRIEFING AND SEMINAR FOR COMMAND AND STAFF PERSONNEL
DATA SOURCE NO: ARI-RN-85-69, ADA160471
AUTHOR: F. KOPSTEIN, A. SIEGEL, J. CONN, J. CAVINESS, W. SLIFER, H. OZKAPTAN, F. DYER

ORIGINATING ORG: APPLIED PSYCHOLOGICAL SERVICES, INC., WAYNE, PA FOR US ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES, ALEXANDRIA, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/01

COMMENTS: DOCUMENT PRESENTS A SYSTEMATIC HUMAN RESOURCES CONSERVATION PROGRAM TO MEET THE DEMANDS OF CONTINUOUS OPERATIONS. TACTICS FOR COUNTERING PERFORMANCE DEGRADATION DURING CONTINUOUS OPERATIONS INCLUDE TASK ROTATION, TASK SHARING, USE OF PERFORMANCE SUPPORTS, PROPER MANAGEMENT OF STRESS, AND APPROPRIATE WORK/REST CYCLES. NO DATA ARE PRESENTED.

TITLE: NIGHT VISION MANUAL FOR THE FLIGHT SURGEON,
DATA SOURCE NO: USAFSAM-SR-85-3
AUTHOR: T.J. TREDICI, R.E. MILLER
ORIGINATING ORG: USAF SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/08/01

COMMENTS: THE FIRST PART OF THIS DOCUMENT DISCUSSED THE PARTS OF THE EYE AND HOW EACH PART IS EFFECTED BY LIGHT. THIS MANUAL WAS BASICALLY DESIGNED FOR FLIGHT SURGEONS AND CONSULTANTS IN OPHTHALMOLOGY AND OPTOMETRY. IT DISCUSSED THE TESTING OF PILOTS TO SEE IF THEY ARE FULLY CAPABLE TO FLY AT NIGHT. THE CAPABILITIES AND LIMITATIONS OF NIGHT VISION GOGGLES (NVG) WERE DISCUSSED IN DETAIL. IT WAS FOUND THAT A PILOT WEARING NVG WAS CAPABLE OF PERFORMING TASKS NORMALLY PERFORMED DURING DAY LIGHT. OTHER CAPABILITIES INCLUDED INSTANTANEOUS EYE ADJUSTMENT, NAVIGATION IMPROVEMENTS, AND COMPLETELY BLOCKED AIRCRAFT ARE CLEARLY VISIBLE. THE LIMITATIONS INCLUDED THE NEED TO REFOCUS THE GOGGLES FOR USE WITHIN AND OUTSIDE COCKPIT, THE TENDENCY OF THE COCKPIT LIGHTS TO BLIND THE PILOT, AND THE DIFFICULTY IN INTERPRETING MAPS.

TITLE: HEAT STRESS EVALUATION OF ANTI-EXPOSURE FLIGHT GEAR
DATA SOURCE NO: NADC-85061-60, ADB092830
AUTHOR: J. KAUFMAN
ORIGINATING ORG: NAVAL AIR DEVELOPMENT CENTER (NADC), WARMINSTER, PA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/15

COMMENTS: CONSTANT WEAR ANTI-EXPOSURE ENSEMBLES (CWU-62/P POLYTETRAFLUOROETHELENE COVERALLS) WERE EVALUATED FOR THEIR IMPACT ON AIR CREW PERFORMANCE UNDER HEAT STRESS. THE RESULTS INDICATE THE COVERALL

HAD A LIMITED IMPACT ON THE TEST RESULTS; BUT THE COVERALL APPEARS TO LIMIT HEAT TOLERANCE. AIRCREWS WEARING THE CWU-62/P COVERALL CANNOT BE EXPECTED TO COMPLETE THREE HOURS OF AIRCRAFT OPERATIONS IF A MODERATE WORKLOAD IS IMPOSED UNDER HEAT STRESS.

TITLE: ANALYSIS OF CB PROTECTIVE MASK DATA (RAM AND HUMAN FACTORS)
DATA SOURCE NO: CAORA/TR-18/85
AUTHOR: R.J. PABON, P. WEBER, B. BERG
ORIGINATING ORG: US ARMY COMBINED ARMS OPERATIONS RESEARCH ACTIVITY (CAORA), FORT LEAVENWORTH, KS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/11/01

COMMENTS: THIS REPORT CONTAINS COMPARATIVE ANALYSIS RESULTS OF THE CHEMICAL AND BIOLOGICAL (CB) PROTECTIVE MASK OPERATIONAL TEST (OT). FOUR BOARDS (THE ARMOR/ENGINEER (ARM), AVIATION (AVN), FIELD ARTILLERY (FA), AND INFANTRY (INF) BOARDS] CONDUCTED TESTS USING THE CURRENT SERIES OF CB PROTECTIVE MASKS AND THREE CANDIDATE REPLACEMENT MASKS. THE REPLACEMENT MASKS WERE MADE BY TWO US MANUFACTURERS, ILC AND SCOTT, AND A BRITISH RESPIRATOR VERSION. THE PURPOSE OF THE ANALYSIS WAS TO DETERMINE IF THE REPLACEMENT MASKS PERFORMED EQUALLY OR BETTER THEN THE CURRENT SERIES OF MASKS. SPECIFIC ISSUES OF RELIABILITY, AVAILABILITY, AND MAINTAINABILITY (RAM) AND HUMAN FACTORS WERE SELECTED. THE QUESTIONNAIRE AND RESULTS ARE PROVIDED.

TITLE: OPERATIONAL TEST II OF THE XM40 PROTECTIVE MASK/US-10 RESPIRATOR
DATA SOURCE NO: TRADOC TRMS 85-OTN-1109C
AUTHOR: D.J. KREJCAREK, H.A. STAUFFENBERG, H.T. MCCARTHY, W.L. LANHAM, T. MICHAELS
ORIGINATING ORG: US ARMY FIELD ARTILLERY BOARD, FORT SILL, OK
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/18

COMMENTS: THE PURPOSE OF THE RESEARCH WAS TO TEST AND EVALUATE THE OPERATIONAL EFFECTIVENESS OF THE XM40 PROTECTIVE MASK/US-10 RESPIRATOR. THE RESULTS SHOW THAT SUBJECTS REPORTED NO SIGNIFICANT DIFFERENCES IN MASK PERFORMANCE WHEN COMPARED TO M17A1 AND XM30. THE GENERAL OBSERVATION WAS THAT THE ARTILLERY MISSIONS COULD BE PERFORMED IN ALL MASKS BUT IN VARYING DEGREES OF TIME AND ACCURACY.

TITLE: COMPARISON OF CHEMICAL WARFARE HAZARD IN TEMPERATE AND DESERT ENVIRONMENTS
DATA SOURCE NO: NATICK/TR-85/062L
AUTHOR: K. BAGGE, J.A. MANICKAS, D. MALABARBA
ORIGINATING ORG: US ARMY NATICK RESEARCH AND DEVELOPMENT CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/08/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO DETERMINE IF TWO DIFFERENT CHEMICAL PROTECTIVE (CP) ENSEMBLES SHOULD BE USED FOR DESERT AND TEMPERATE ENVIRONMENTS. THE COMPUTER MODEL NUSSE II (NON UNIFORM SIMPLE SURFACE EVAPORATION MODEL, VERSION II) WAS USED TO DETERMINE CHALLENGE LEVELS IN THE TWO ENVIRONMENTS. SARIN (GB), THICKENED SOMAN (TGD), AND MUSTARD-LEWISITE (HL) WERE USED IN THE TESTS. IT WAS DETERMINED THAT THE INITIAL DEPOSITION LEVELS IN THE TWO ENVIRONMENTS WERE SIMILAR, BUT THE LIQUID EVAPORATED MORE QUICKLY IN THE DESERT THAN THE TEMPERATE ENVIRONMENT. THIS WAS NOT CONSIDERED TO BE CLEAR JUSTIFICATION FOR TWO DIFFERENT CP OVERGARMENTS. IT WAS SUGGESTED THAT OTHER FACTORS SUCH AS PRECIPITATION AND CAMOUFLAGE BE CONSIDERED.

TITLE: PROBLEMS OF CHEMICAL DEFENSE OPERATIONS IN EXTREME COLD
DATA SOURCE NO: DPG-C-TA-85-08, ADB099962
AUTHOR: R.L. STEARMAN
ORIGINATING ORG: DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/01

COMMENTS: THIS DOCUMENT DISCUSSED THE PROBLEMS ASSOCIATED WITH NORMAL AND NBC (NUCLEAR, BIOLOGICAL AND CHEMICAL) OPERATIONS IN COLD CLIMATES. THE ARTICLES DISCUSS THE PHYSIOLOGICAL AND PSYCHOLOGICAL PROBLEMS ASSOCIATED WITH MILITARY OPERATIONS IN EXTREMELY COLD WEATHER. THE EXPERIENCE OF ARMY PERSONNEL IN ALASKA LED TO THE DISCOVERY OF THE FOLLOWING NBC-RELATED PROBLEMS: 1) FREEZING OF LIQUID USED IN DECONTAMINATION, 2) MATERIALS (MASK, GLOVES) BECOME BRITTLE AND EVENTUALLY TORN, 3) AGENT DETECTION TAKES MORE TIME BECAUSE REAGENTS TAKE LONGER TO REACT AND THEREFORE A SLOW POSITIVE RESPONSE TENDS TO BE INTERPRETED AS A NORMAL NEGATIVE RESPONSE, 4) FROZEN DROPLETS OF AGENT COULD MELT ON WARM SKIN AND THEN VAPORIZE, AND 5) THE EXTREMELY COLD RUBBER OF THE MASK CAUSES FROSTBITE TO THE FACE.

TITLE: THE NETHERLANDS STUDIES THE RELATIONSHIP OF CLOTHING DESIGN TO MILITARY PERFORMANCE
DATA SOURCE NO: DST-85C-005416
ORIGINATING ORG: DEFENSE INTELLIGENCE AGENCY, WASHINGTON, DC

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/18

COMMENTS: RESEARCH AT THE INSTITUTE OF PERCEPTION, DIVISION OF NATIONAL DEFENSE OF TNO, SOESTERBERG PRODUCED THE FOLLOWING CONCLUSIONS REGARDING THE EFFECTS OF CLOTHING AND EQUIPMENT DESIGN ON HUMAN PERFORMANCE: 1) INDIVIDUAL PERFORMANCE ON STANDARD TESTS CANNOT BE USED TO MEASURE MILITARY UNIT PERFORMANCE, 2) LITTLE IS KNOWN ABOUT THE CUMULATIVE EFFECTS AND INTERRELATIONSHIPS OF CLOTHING AND PROTECTIVE EQUIPMENT OF DIFFERENT WEIGHTS WHEN WORN TOGETHER, 3) THE RELATIONSHIPS OF HEART RATE AND BODY TEMPERATURE TO WORK PERFORMANCE HAS BEEN DETERMINED AND CAN BE USED TO PREDICT CASUALTIES, AND 4) WEARING OF BODY ARMOR, CHEMICAL WARFARE ENSEMBLES, LOAD CARRYING SYSTEMS, AND ARTIC CLOTHING SERIOUSLY HINDERS PERFORMANCE. NO FURTHER DETAILS ARE GIVEN.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS (SAWE) SAFETY CRITERIA
DATA SOURCE NO: ARRAD-TR-85002
AUTHOR: S. HOXHA, J.E. ELLIOTT
ORIGINATING ORG: ARMAMENT RESEARCH AND DEVELOPMENT CENTER (ARDC), DOVER, NJ
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/09/01

COMMENTS: THIS REPORT PROVIDES SAFETY CRITERIA FOR THE SIMULATION OF AREA WEAPONS EFFECTS (SAWE) PROGRAM. THE REPORT DISCUSSES FOUR SPECIFIC AREAS: BLAST OVERPRESSURE, BLUNT TRAUMA, BURN, AND EYE FLASH HAZARDS. EACH POTENTIAL HAZARD WAS DEFINED AS TO SEVERITY AND CLASSIFIED ACCORDING TO MIL-STD-882A HAZARD SAFETY LEVELS. ACCEPTABLE ARMY RISK CRITERIA WERE DEVELOPED BASED ON SEVERITY AND PROBABILITY.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS (SAWE) PROOF-OF-CONCEPT DEVELOPMENT ACTIVITIES FOR CHEMICAL TRAINING DEVICES
DATA SOURCE NO: PM TRADE-7070-19-VOL-3, ADB097826
AUTHOR: D.C. GRIFFIN, W.L. DOWLER, S.E. ASPLUND, N.W. FERRARO
ORIGINATING ORG: JET PROPULSION LABORATORY, PASADENA, CA FOR NAVAL TRAINING CENTER, ORLANDO, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/04/26

COMMENTS: THE OBJECTIVES OF WORK WERE TO DEVELOP A TRAINING MASK AND PERSISTENT CHEMICAL AGENT SIMULANT TO THE DEGREE NECESSARY FOR THE ARMY TO DETERMINE IF THE CONCEPTS WERE SUFFICIENTLY VALID TO WARRENT FURTHER WORK AND ULTIMATELY TO PROVIDE TRAINING DEVICES WITH THE REALISM NECESSARY FOR EFFECTIVE TRAINING. REPORT PRESENTS A CHEMICAL SCENARIO FOR

THE ARMY BASED ON ARMY TRAINING AND EVALUATION PROGRAM (ARTEP) 7-15 AND IS A DETAILED PROCEDURAL METHOD FOR SCENARIO DEVELOPMENT.

TITLE: ATROPINE AND THERMOREGULATION IN MAN (A REPORT ON THREE STUDIES)
DATA SOURCE NO: USARIEM-T-12/85, ADA163738
AUTHOR: L. LEVINE, B.S. CADARETTE, R.R. GONZALEZ, W.L. HOLDEN, M.A. KOLKA, K.B. PANDOLF, P.B. ROCK, M.N. SAWKA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/06/01

COMMENTS: THIS REPORT SUMMARIZES THE FINDINGS OF THREE STUDIES OF ATROPINE-IMPAIRED THERMOREGULATION OF MALES IN HOT ENVIRONMENTS. STUDY I INDICATED THAT THE RELATIONSHIP BETWEEN ATROPINE AND HEART RATE IS CURVILINEAR WHILE RECTAL TEMPERATURE AND DOSE IS LINEAR. STUDY II DEMONSTRATED THAT HEAT ACCLIMATIZATION IMPROVED THE ENDURANCE TIME IN A HOT-DRY ENVIRONMENT. STUDY III SHOWED MOTOR PERFORMANCE TIME WAS NOT REDUCED IN ATROPINE-TREATED SUBJECTS IN THE MORE HUMID ENVIRONMENTS, BUT GREATLY DEMINISHED PERFORMANCE IN HOT/DRY CLIMATE. NO TESTING WAS COMPLETED USING THE CHEMICAL DEFENSE ENSEMBLE.

TITLE: COMPARISON OF CIVILIAN CASUALTIES RESULTING FROM CONVENTIONAL AND CHEMICAL WEAPONS USING THE TACWAR THEATER COMBAT MODEL
DATA SOURCE NO: IDA-P-1792, ADC036868
AUTHOR: J.H. GROTTE, J.N. FRY, L.A. SCHMIDT, L. WAINSTEIN
ORIGINATING ORG: INSTITUTE FOR DEFENSE ANALYSES, ALEXANDRIA, VA FOR DEFENSE NUCLEAR AGENCY, WASHINGTON, DC
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/01/01

COMMENTS: THIS STUDY DEVELOPED AND IMPLEMENTED A METHODOLOGY TO ESTIMATE CIVILIAN CASUALTIES FROM CONVENTIONAL MUNITION. THE METHODOLOGY WAS INCORPORATED WITH TACWAR MODEL CODE AND USED TO ESTIMATE THE CONTRIBUTION OF CONVENTIONAL AS WELL AS CHEMICAL WEAPONS TO CIVILIAN CASUALTIES IN THE EUROPEAN THEATER. EXAMPLE RUNS WERE MADE USING A 1986 EUROPEAN DATA BASE TO COMPARE CIVILIAN CASUALTIES RESULTING FROM CONVENTIONAL AND CHEMICAL WEAPONS. THE METHODOLOGY USED TO CALCULATE CHEMICAL CASUALTIES IS NOT EXPLAINED. DATA ARE PRESENTED ON CIVILIAN CASUALTIES FROM WORLD WAR II, VIETNAM, THE FALKLAND WAR AND OTHERS.

TITLE: A FIELD STUDY OF GROUND DEPOSITION, WIND DRIFT AND BYSTANDER EXPOSURE FROM AGRICULTURAL AIRCRAFT SPRAY EMISSIONS
DATA SOURCE NO: NAE-AN-30, ADA160891
AUTHOR: R.S. CRABBE, M. MCCOOEYE
ORIGINATING ORG: NATIONAL AERONAUTICAL ESTABLISHMENT (NAE), CANADA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/01

COMMENTS: PRESENTS RESULTS OF CONTROLLED FIELD EXPERIMENT ON DEPOSITION, WIND DRIFT, AND BYSTANDER EXPOSURE FROM AGRICULTURAL AIRCRAFT SPRAY EMISSIONS OVER RURAL TERRAIN. TWO AIRCRAFT AND ONE GROUND RIG, ALL FITTED WITH CONVENTIONAL BOOM NOZZLE SYSTEMS, DISPERSED FORMULATIONS (AN AQUEOUS OIL EMULSION AND AN AQUEOUS SOLUTION OF THE WETTABLE POWDER ROVRAL) ON A 800-METER BY 500-METER FIELD. A GRID OF DOSIMETER-TYPE SAMPLERS PLACED AT HEIGHTS OF 1.5 METERS ABOVE GROUND MEASURED DOSAGE (TIME-INTEGRATED ATMOSPHERIC DROPLET CONCENTRATIONS). RESULTS AND CONCLUSIONS ARE DISCUSSED.

TITLE: PHARMACOKINETIC PARAMETERS OF SELECTED ORGANOPHOSPHATE COMPOUNDS WITH ANTICHOLINESTERASE ACTIVITY
DATA SOURCE NO: AFAMRL-TR-85-040, ADA157923
ORIGINATING ORG: ARTHUR D. LITTLE, INCORPORATED, CAMBRIDGE, MA FOR AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY (AFAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/01

COMMENTS: AN IN-DEPTH LITERATURE SEARCH USING COMPUTERIZED DATA BANKS WAS CARRIED OUT AND USED TO PREPARE A CRITICAL REVIEW ON THE PHARMACOKINETIC PARAMETERS OF SELECTED ORGANOPHOSPHATE (OP) AGENTS INCLUDING TEPP, GB (SARIN), DFP AND PARAOXON. PHARMACOKINETIC PARAMETERS ADDRESSED INCLUDE THE PARTITIONING AND BINDING OF THE OP AGENTS TO TISSUES IN THE CENTRAL AND PERIPHERAL NERVOUS SYSTEMS; THE BINDING KINETICS OF OP AGENTS TO ACETYLCHOLINESTERASE, ALIESTERASE AND OTHER ENZYMES; AND THE ENZYMATIC AND NON-ENZYMATIC HYDROLYSIS OF OP AGENTS. FINALLY, AN OVERVIEW IS PRESENTED ON ANALYTICAL TECHNIQUES USED TO ASSAY OP AGENT EFFECTS ON ENZYME ACTIVITY BOTH IN VIVO AND IN VITRO; AND ON QUANTITATIVE METHODS FOR PARENT OP AGENT, ITS HYDROLYSIS PRODUCTS AND INORGANIC FLUORINE.

TITLE: OPERATIONAL TEST II OF XM40 CB PROTECTIVE MASK AND US-10 RESPIRATOR
DATA SOURCE NO: USAIB-P-3761, ADB097906
ORIGINATING ORG: US ARMY INFANTRY BOARD, FORT BENNING, GA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/10/01

COMMENTS: THIS REPORT DESCRIBES THE TESTS AND RESULTS FROM THOSE TESTS PERFORMED ON THE XM40 CB PROTECTIVE MASK AND US-10 RESPIRATOR. THE TESTS WERE DESIGNED TO ADDRESS THE FOLLOWING ISSUES: MISSION PERFORMANCE; RAM (RELIABILITY, AVAILABILITY, AND MAINTAINABILITY); LOGISTICS; TRAINING; COMPATIBILITY; HUMAN FACTORS; AND SAFETY. TESTS WERE CONDUCTED DURING ACTUAL MISSION SCENARIOS WITH THE SOLDIERS WEARING THE MASKS WHILE PERFORMING TASKS. MAJOR FINDINGS INCLUDE: MISSION PERFORMANCE IS BETTER WITH THIS MASK THAN PREVIOUS MASKS; SEVERE VISION DEGRADATION IS INVOLVED IN AIRBORNE MISSIONS; AND MASK-TO-FACE SEAK ON THE MASK DO BREAK, BUT WITH PROPER TRAINING MOST OF THIS CAN BE AVOIDED.

TITLE: STIKIROM IS READY FOR COMMERCE
DATA SOURCE NO: DST85C019409
ORIGINATING ORG: DEFENSE INTELLIGENCE AGENCY (DIA), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/09/26

COMMENTS: DESCRIBES AN ISRAELI PRODUCT WHICH CAN BE USED FOR PERSONAL DEFENSE. STIKIROM CONTAINS NO ACTIVE (CHEMICAL OR TEAR GAS) AGENTS SO AS TO MEET EUROPEAN AND AMERICAN REQUIREMENTS ON IMPORTATION OF NONLETHAL AND NONTEAR-GAS WEAPONS. STIKIROM CONTAINS A NATURAL RUBBER AND COAGULANT MATERIAL. WHEN ACTIVATED THE RUBBERY MASS STICKS TO THE EYELIDS AND BROWS OF THE AGGRESSOR. ALSO MENTIONS A PROJECT POCKET-SIZED TEAR GAS DEVICE WHICH WHEN ACTIVATED, AFFECTS THE RESPIRATORY SYSTEM AND CAUSES TEMPORARY BLINDNESS.

TITLE: COMBAT CASUALTIES AMONG US MARINE CORPS PERSONNEL IN VIETNAM: 1964-1972
DATA SOURCE NO: NAVHLTHRSCHC-85-11, ADA160856
AUTHOR: L.A. PALINKAS, P. COBEN
ORIGINATING ORG: NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS DOCUMENT GIVES A DESCRIPTIVE ACCOUNT OF FOUR ASPECTS OF MARINE CORPS COMBAT CASUALTIES IN VIETNAM BETWEEN 1964 AND 1972: TYPES OF PERSONNEL INJURED; TYPES OF INJURIES; WOUNDING AGENTS; AND THE FLOW OF PATIENTS INTO AND FROM MEDICAL FACILITIES IN VIETNAM. INCLUDED ARE DATA TABLES QUALIFYING CASUALTIES BY AGE, RACE, PAY GRADE, YEARS SERVED, ETC. WHILE ONLY DESCRIPTIVE IN NATURE, THE DATA PRESENTED REFLECT THE DEMANDS PLACED ON MEDICAL FACILITIES IN A MILITARY THEATER OF OPERATIONS.

TITLE: PROTECTION AGAINST CHEMICAL ATTACK PROVIDED BY BUILDINGS
DATA SOURCE NO: DPG-C-TA-85-05, ADB099975
AUTHOR: R.L. STEARMAN
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/03/01

COMMENTS: THIS REPORT PRESENTS RESULTS OF A STUDY TO DEFINE THE PROTECTION FACTOR, AGAINST CHEMICAL AGENT AEROSOL OR VAPOR, AND NORMAL BUILDINGS WITH ENVIRONMENTAL CONTROL SYSTEMS (ECS). A BUILDING PROTECTION MODEL IS PRESENTED AND COMPUTER PROGRAMS ARE GIVEN FOR THE MODEL'S USE. THE PROTECTION FACTOR IS DEFINED, AND METHODS TO DETERMINE LEAKAGE AREA OF A STRUCTURE ARE GIVEN. WAYS TO INCREASE THE PROTECTION OFFERED BY STRUCTURES ARE PRESENTED.

TITLE: EFFECTIVENESS OF AN AIR-COOLED VEST IN REDUCING HEAT STRESS OF SOLDIERS IN CHEMICAL PROTECTIVE CLOTHING
DATA SOUURCE NO: USARIEM-T-5/86
AUTHOR: N.A. PIMENTAL, M.N. SAWKA, T.H. TASSINARI
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/01

COMMENTS: THIS STUDY EVALUATED THE EFFECTIVENESS OF AN AIR-COOLED VEST IN REDUCING PHYSIOLOGICAL STRAIN OF SOLDIERS IN CHEMICAL PROTECTIVE CLOTHING DURING EXERCISE-HEAT STRESS. FOUR MALE SOLDIERS ATTEMPTED A 12-HOUR AND A 3-HOUR HEAT EXPOSURE WHILE WEARING CHEMICAL PROTECTIVE CLOTHING AND AN AIR-COOLED VEST. DURING EXPOSURES SUBJECTS PERFORMED REPEATED BOUTS OF REST AND TREADMILL WALKING. THE STUDY WAS DONE UNDER SPECIFIC ENVIRONMENTAL CONDITIONS AND HEAT LOAD WHICH ARE DOCUMENTED. STATISTICS FOR RECTAL TEMPERATURE, FINAL HEART RATE, AND SWEATING RATE ARE GIVEN IN BAR FORM. THE AIR-COOLED VEST WAS EFFECTIVE IN REDUCING PHYSIOLOGICAL STRAIN, AND INCREASING TOLERANCE TIME OF SOLDIERS DURING EXERCISE HEAT STRESS.

TITLE: CASUALTY GENERATION SYSTEM USER'S MANUAL (DRAFT)
DATA SOURCE NO: BDM/W-85-605-TR
AUTHOR: M.M. WILDING, S.W. RUDY, C.P. NEUSWANGER
ORIGINATING ORG: THE BDM CORPORATION, ALBUQUERQUE, NM FOR AEROSPACE MEDICAL DIVISON, BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/14

COMMENTS: THE AUTOMATED CASUALTY GENERATION SYSTEM (CGS) HAS THREE MAIN COMPONENTS: BUILDING CASUALTY ESTIMATION; FREE FIELD CASUALTY ESTIMATION; AND, CASUALTY STREAM GENERATION. THIS USER'S GUIDE PROVIDES DETAILS OF AUTOMATED PROGRAM OPERATION, PRINCIPALLY INPUT/OUTPUT, BUT LITTLE THEORY OR METHODOLOGY. THE CGS WAS FIRST USED TO PRODUCE A CASUALTY STREAM FOR THE AIR BASE SURVIVABILITY CAPABILITIES DEMONSTRATION (CODENAME SALTY DEMO). THE BDM TECHNICAL REPORT AIR FORCE SURVIVABILITY ASSESSMENT TEST SUPPORT, FINAL REPORT (BDM/A-84-939-TR) CONTAINS DETAILS OF THE METHODOLOGY.

TITLE: EMPLOYMENT OF CHEMICAL AGENTS
DATA SOURCE NO: FM3-10-1/NWP
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/06/28

COMMENTS: DOCUMENT SUPERSEDES FM3-10 DATED 31 MARCH 1966. CONTAINS POLICY AND OBJECTIVES, EMPLOYMENT CONSIDERATIONS, COMMAND RESPONSIBILITIES, CHEMICAL TARGET ANALYSIS, DEPLOYMENT AND LOGISTICS CONSIDERATIONS, CHEMICAL WEAPON REFERENCE DATA, AGENT CHARACTERISTICS, NBC WEATHER FORECAST, CW OPERATIONAL TASKS FOR COMMANDERS, AND A GLOSSARY. GOOD REFERENCE DOCUMENT.

TITLE: COMPARATIVE ANALYSIS OF ARMY DIVISION DEPLOYABILITY BY AIR
DATA SOURCE NO: ADEA-85-1, ADB092734
AUTHOR: E.C. BLACK
ORIGINATING ORG: US ARMY DEVELOPMENT AND EMPLOYMENT AGENCY, FORT LEWIS, WA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO COMPARE STRATEGIC DEPLOYABILITY AIRLIFT REQUIREMENTS OF THE 9TH INFANTRY DIVISION (MOTORIZED) (9ID(MTZ)) WITH OTHER TYPES OF ARMY DIVISIONS. THE STUDY INCLUDES STRATEGIC DEPLOYABILITY PROFILES ACROSS THE SPECTRUM OF LIGHT AND HEAVY DIVISIONS. THE 9ID(MTZ) IS DEPICTED IN THREE PHASES OF DEVELOPMENT: CURRENT EQUIPMENT, THE 1986 "FLYAWAY" DESIGN (WITH SURROGATES), AND THE POST-86 DESIGN WITH OBJECTIVE EQUIPMENT. MODELLING WAS PERFORMED ON THE AUTOMATED AIRLIFT LOAD PLANNING SYSTEM (AALPS). RECOMMENDATIONS FOR AALPS IMPROVEMENT IS ALSO CONTAINED.

TITLE: EFFECTS OF ATROPINE SULFATE ON AIRCREW PERFORMANCE: A REVIEW AND EVALUATION
DATA SOURCE NO: USAFSAM-TR-85-48, ADA165063
AUTHOR: M.L. LOBB, J.D. PHILLIPS, A.S. WINTER
ORIGINATING ORG: DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TEXAS, ARLINGTON, TX FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/01

COMMENTS: THE PERFORMANCE OF AIRCREW PERSONNEL AFTER INJECTION OF ATROPINE SULFATE WAS EXTRAPOLATED FROM LITERATURE CONTAINING THE PERFORMANCE AND EFFECTS OF ATROPINE SULFATE ON HUMANS AND ANIMALS. THE ED40 (DOSE AT WHICH 40 PERCENT OF AN AIRCREW WILL EXPERIENCE A DETECTABLE PERFORMANCE CHANGE) IS EXTRAPOLATED TO BE ABOUT 2 MILLIGRAMS INTERMUSCULAR PER PERSON. DEGRADATION INCLUDE LOSS OF NEAR-VISION, ALERTNESS, EQUILIBRIUM, RESPONSE-FORCE DISCRIMINATION, AND ENUNCIATION.

TITLE: POSSIBLE LONG-TERM HEALTH EFFECTS OF SHORT-TERM EXPOSURE TO CHEMICAL AGENTS, VOLUME III: CURRENT HEALTH STATUS OF TEST SUBJECTS
DATA SOURCE NO: ADA163614
ORIGINATING ORG: NATIONAL ACADEMY OF SCIENCES, WASHINGTON, DC FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FREDERICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/31

COMMENTS: THIS IS THE THIRD VOLUME IN A SERIES PREPARED FOR A STUDY INVESTIGATING POSSIBLE DELAYED AND LONG-TERM EFFECTS OF EXPERIMENTAL CHEMICALS ADMINISTERED TO SOLDIERS AT THE US ARMY LABORATORIES, EDGEWOOD, MARYLAND BETWEEN 1955-1975. THE TESTS WERE INTENDED TO INVESTIGATE THE IMMEDIATE AND SHORT-TERM HUMAN PERFORMANCE EFFECTS OF SHORT-TERM EXPOSURE TO VARIOUS CHEMICALS WITH WARFARE POTENTIAL AND THE SUBJECTS' RESPONSES TO THERAPY FOR SUCH EFFECTS. VOLUME III IS BASED ON INFORMATION OBTAINED FROM A QUESTIONNAIRE MAILED TO EDGEWOOD TEST SUBJECTS WHO COULD BE LOCATED, REGARDING THEIR CURRENT HEALTH STATUS. CONCLUSIONS SHOWED THAT DUE TO THE EXPERIMENTAL METHODS USED IN THE STUDY AND THE AVAILABLE COMPARISON GROUPS, THAT ONLY LARGE EFFECTS WERE LIKELY TO BE UNCOVERED. MULTIPLE TABLES REPORTING RESULTS OF THE QUESTIONNAIRE AND THE STUDY ARE INCLUDED. EXECUTIVE SUMMARIES OF VOLUMES I AND II ARE INCLUDED IN APPENDIX A.

TITLE: THE EFFECT OF COLD TRAINING AND THE WEARING OF GLOVES ON MANUAL PERFORMANCE IN THE COLD: A COMPARISON OF PURE ABILITY AND OPERATIONAL TASKS
DATA SOURCE NO: NSMRL-1067, ADA163893

AUTHOR: W.H. ROGERS
ORIGINATING ORG: US NAVAL SUBMARINE MEDICAL RESEARCH LABORATORY (NSMRL), GROTON, CT
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/11/14

COMMENTS: THIS DOCUMENT ADDRESSES THE PROBLEM OF COLD-INDUCED MANUAL PERFORMANCE DECREMENTS. EXPERIMENTS WERE DONE BASED ON THE NOTION THAT THE AMOUNT OF DECREMENT, AND POSSIBLY THE BEST MEANS FOR REDUCING THAT DECREMENT DEPEND ON THE SPECIFIC MOTOR ABILITIES REQUIRED TO PERFORM A GIVEN TASK. A BATTERY OF FIVE PURE-ABILITY AND FOUR OPERATIONAL TASKS WERE ADMINISTERED TO SIX FOUR-MAN GROUPS OF US MARINES NEITHER GLOVES NOR TEMPERATURE-SPECIFIC TRAINING REDUCED OR ELIMINATED COLD-INDUCED PERFORMANCE DECREMENTS FOR ANY TASKS. THE QUANTIFICATION AND REMEDY OF COLD-INDUCED PERFORMANCE DECREMENTS BASED ON PURE-ABILITY TASKS ARE APPLICABLE TO OPERATIONAL TASKS REQUIRING THE SAME ABILITIES. SOME DATA GIVEN IN GRAPH FORM.

TITLE: MILITARY MEDICINE LITERATURE SURVEY
DATA SOURCE NO: TDCK-G-352, ADB096177
ORIGINATING ORG: TECHNISCH DOCUMENTATIE EN INFORMATIE CENTRUM, VOOR DE KRIJGSMA, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/05/01

COMMENTS: THIS DOCUMENT CONTAINS ABSTRACTS OF MILITARY MEDICAL LITERATURE COVERING A WIDE VARIETY OF TOPICS, INCLUDING: CHEMICAL CONTAMINATION AND DECONTAMINATION, CHEMICAL PROTECTION, CHEMICAL SIMULANTS, PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS, ELECTRICAL SHOCK AND BURN TREATMENT, DISEASE DETECTION AND TREATMENT, TRAUMA, AND HUMAN PERFORMANCE AND BEHAVIOR. ABSTRACTS ARE IN GERMAN, FRENCH, ENGLISH, AND SWEDISH.

TITLE: DEPARTMENT OF DEFENSE ANNUAL REPORT ON CHEMICAL WARFARE-BIOLOGICAL DEFENSE RESEARCH PROGRAM OBLIGATIONS
DATA SOURCE NO: DD-USDRE(A)-1065, ADA167393
ORIGINATING ORG: OFFICE OF THE DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/01/01

COMMENTS: THIS DOCUMENT INCLUDES AN ANNUAL REPORT, FOR FY84, TO CONGRESS ON THE FUNDS OBLIGATED FOR CHEMICAL WARFARE AND BIOLOGICAL DEFENSE RESEARCH AND PROCUREMENT PROGRAMS. CONTENTS OF THIS REPORT INCLUDE BRIEF COMMENTS ON THE FOLLOWING TOPICS: CHEMICAL RESEARCH, LETHAL CHEMICAL PROGRAM, INCAPACITATING CHEMICAL PROGRAM, DEFENSIVE EQUIPMENT

PROGRAM, TRAINING SUPPORT, SIMULANT TEST SUPPORT, BIOLOGICAL RESEARCH, AND DEFENSIVE SYSTEMS.

TITLE: OPERATIONAL TEST (OT) II OF XM40 (CB) PROTECTIVE MASK AND US-10 RESPIRATOR
DATA SOURCE NO: 5-OTN1109B, ADB097912
AUTHOR: D.E. BECTON, J.R. JOHNSON
ORIGINATING ORG: US ARMY ARMOR AND ENGINEER BOARD, FORT KNOX, KY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/09/06

COMMENTS: TESTS WHERE PERFORMED TO DETERMINE THE XM40 SERIES CHEMICAL-BIOLOGICAL (CB) MASK AND US-10 SERIES RESPIRATOR ARE SUPERIOR TO THE CURRENTLY FIELDED M25A1 MASK. SPECIFIC ITEMS TESTED WERE THE XM42 MASK, SERIES A AND B, AND THE US-12 RESPIRATOR. SIGNIFICANT MAJOR FINDINGS WERE THE TEST SUBJECTS ABLET TO WEAR THE TEST MASKS FOR A FULL TWELVE HOUR PERIOD VARIED FROM 63 TO 81 PERCENT. BROKEN EQUIPMENT WAS A PROBLEM FOR TWO OF THE MASKS. WHEN PROPERLY FITTED, NONE OF THE MASKS LEAKED DURING ARMOR RELATED TASKS. XM42 IS AN OUTGROWTH OF THE XM30 AND M17A1, RETAINING THE EYE PIECES AND CANISTER FILTER DESIGN. GOOD DESCRIPTION OF THE MASKS NOW IN USER IS GIVEN.

TITLE: PHYSIOLOGICAL RESPONSES TO WBGT-EQUIVALENT ENVIRONMENTS AND TWO CLOTHING TYPES DURING SIMULATED DESERT MARCHES,
DATA SOURCE NO: USARIEM-T-4/86, ADA170261
AUTHOR: L.E. ARMSTRONG, P.C. SZLYK, R.W. HUBBARD, D.B. ENGELL, I.V., SILS, J.P. DELUCA, W.T. MATTHEW, R.P. FRANCESCONI, M.J. DURKOT, R.F. LARSEN
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO DETERMINE IF HOT-WET AND HOT-DRY ENVIRONMENTS WERE EQUALLY STRESSFUL TO THE EXERCISING INDIVIDUAL AND TO DETERMINE THE EFFECTS OF CLOTHING (SHORTS VERSUS MODIFIED BATTLE DRESS UNIFORM (BDU)) WORN WHILE EXERCISING IN BOTH ENIRONMENTS. SUBJECTS CONSISTED OF SIX MALE SOLDIERS. RESULTS SHOWED 1) HOT-WET AND HOT-DRY ENVIRONMENTS PRODUCED DIFFERENT PHYSIOLOGICAL RESPONSES. AND 2) WEARING THE BDU RESULTED IN HIGHER SWEAT RATES AND INCREASED OXYGEN CONSUMPTION (WHEN COMPARED TO SHORTS).

TITLE: COLD WEATHER ASPECTS OF NBC OPERATIONS - A SURVEY OF SELECTED WARSAW PACT OPEN SOURCE LITERATURE
DATA SOURCE NO: ORI-TR-2455, ADB062913
AUTHOR: S. TESKO
ORIGINATING ORG: ORI INC., ALEXANDRIA, VA FOR NAVAL SEA SYSTEMS COMMAND, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/09/30

COMMENTS: PRESENTS A VERY BRIEF REVIEW OF WARSAW PACT VIEWS ON THE IMPACT OF COLD WEATHER ON NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) OPERATIONS FROM UNCLASSIFIED OPEN SOURCE REPORTING. SOURCE OBSERVATIONS INCLUDES: LOW TEMPERATURES ALLOW USE OF OTHERWISE HIGHLY VOLATILE AGENTS; PROVISIONS OF UNFROZEN WATER AND DECONTAMINANTS IS AN EXTRA BURDEN; EXTRNAL COLD ENCOURAGES CONGREGATION (COLLECTIVE PROTECTION) OF PERSONNEL IN SHELTERS THEREBY PROMOTING DISEASE SPREAD; THERMAL INJURIES FROM NUCLEAR WEAPONS WILL GENERALLY DECREASE IN COLD WEATHER DUE TO PERSONNEL WEARING INCREASED CLOTHERING; NBC RECONNAISSANCE IS GREATLY COMPLICATED IN WINTER (SNOW) OR ARTIC ENVIRONMENT, DUE TO COVERED OR FROZEN CONTAMINATION AS WELL AS SNOW AND WIND STORMS WHICH CAN CREATE CONTAMINATION ZONES OF UNUSUAL SHAPE. CONTAINS WEITNER NUMBERS FOR COMMON AGENTS FROM FRANKE.

TITLE: THE MAGNITUDE OF MAXIMUM STRESS IN CLOTHING
DATA SOURCE NO: DREO-TN-86-5, ADA175279
AUTHOR: R.M. CROW, M.M. DEWAR
ORIGINATING ORG: DEFENCE RESEARCH ESTABLISHMENT OTTAWA (DREO), OTTAWA, ONTARIO, CANADA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/07/01

COMMENTS: STRESS IN CLOTHING WAS MEASURED BY A STRAIN GAUGE (A BRIDGE CLIP) MOUNTED ON A METAL CARRIER WHICH COULD BE EASILY ATTACHED TO CLOTHING AT VARIOUS LOCATIONS. THE BRIDGE CLIP WAS USED TO MEASURE MAXIMUN STRESSES IN CANADIAN FORCES COMBAT CLOTHING. THEY FOUND THE CLOSER THE FIT OF THE CLOTHING, THE GREATER STRESS ON CLOTHING. THE DEGREE OF STRESS IN A SUBJECT PUT ON THE CLOTHING APPEARED TO DEPEND AS WELL ON INDIVIDUAL MUSCULAR DEVELOPMENT AND ON AGGRESSIVENESS IN EXERTING STRESS ON HIS CLOTHING.

TITLE: CONCEPT STUDY: MOBILE MEDICAL FACILITY FOR THE CHEMICAL BATTLEFIELD
DATA SOURCE NO: NATICK/TR-87/007L, ADB110274
AUTHOR: C.L. NICKERSON
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/07/01

COMMENTS: THIS REPORT DOCUMENTS THE CONCEPT ANALYSIS FOR A CHEMICALLY HARDENED BATTALION AID STATION AND DETERMINATION CRITERIA FOR THE MOST PROMISING APPROACHES TO MEET THE ARMY REQUIREMENTS FOR EMERGENCY MEDICAL TREATMENT ON THE CHEMICAL BATTLEFIELD AND COLLECTIVE PROTECTION AGAINST CHEMICAL AGENTS. STUDY RECCOMMENDATIONS ARE: PRESSURIZED RIB ON FABRIC FRAME STRUCTURE; LAMINATED COMPOSITE CHEMICALLY PROTECTIVE EXTERNAL FABRIC; AN INTERGRATED AMBULATORY, MULTIPLE-LITTER AIRLOCK; HIGH THERMAL RESISTANCE POLYESTER/FOIL INSULATING LINER KIT; AND A COMPLEXING CAPACITY. DEFINES DIFFERENCES BETWEEN A BATTALIN AID STATION, A DIVISION CLEANING STATION, AND A CORPS LEVEL HOSPITAL.

TITLE: THE EFFECTS OF ATROPINE SULFATE ON AVIATOR PERFORMANCE
DATA SOURCE NO: ARL-TR-85-1, ADA179078
AUTHOR: H.L. TAYLOR, J.A. DELLINGER, B.C. RICHARDSON, M.H. WELLER, S.W. PORGES, C.D. WICKENS, J.E. LEGRAND, J.M. DAVIS
ORIGINATING ORG: AVIATION RESEARCH LABORATORY, UNIVERSITY OF ILLINOIS, SAVOY, IL FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FREDERICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/03/01

COMMENTS: THE PURPOSE OF THIS STUDY IS TO DETERMINE THE EFFECT OF ATROPINE SULFATE ON PILOT PERFORMANCE, AS MEASURED ON A FLIGHT SIMULATOR, AND TO INVESTIGATE PHYSIOLOGICAL CORRELATES OF THIS EFFECT. SUBJECTS WERE GIVEN DOSES RANGING FROM 0-4 MILLIGARAMS (MG). TWO MG OF ATROPINE REDUCED THE PILOT'S PERFORMANCE ABILITY AND SHOULD ONLY BE USED FOR HIGH PROBABILITY OF EXPOSURE. A 4.0 MG INJECTION PRODUCED SIGNIFICANT PERFORMANCE DECREMENTS AND DEARLY INCREASED THE RISK OF ERROR. DETAILED RESULTS ARE GIVEN.

TITLE: AIRFIELD DAMAGE REPAIR EXERCISE IN EUROPE, 1983
DATA SOURCE NO: WES/MP/GL-85-32, ADB098765
AUTHOR: A.W. SEMPLE, J.W. HORNE
ORIGINATING ORG: US ARMY ENGINEER WATERWAYS EXPERIMENT STATION, GEOTECHNICAL LABORATORY, VICKSBURG, MS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/12/01

COMMENTS: ILLUSTRATES THE SEQUENTIAL STEPS REQUIRED FOR RAPID OR TEMPORARY REPAIR, SEMI-PERMANENT REPAIRS AND PERMANENT REPAIR. CRATERS VARIED IN SIZE FROM 2.8 METERS(M) DEEP AND 20 M IN DIAMETER TO 1.7 M AND 8 M RESPECTIVELY. SPALLS WERE APPROXIMATELY 0.2 M DEEP AND 0.5

M ACROSS. CRATERS WERE REPAIRED TO MEET DEFINED STANDARDS AND TESTED WITH A SIMULATED F-4 AIRCRAFT WHEEL. WEATHER, MATERIALS AND EQUIPMENT ARE DEFINED. MINUTE BY MINUTE TIMELINES ARE PRESENTED FOR EACH REPAIR TYPE. REPAIR TIMES, AVERAGE SURFACE DEFLECTIONS AND A TASK/SUBTASK BREAK DOWN ARE PRESENTED. CONTAINS PICTURES ON VARIOUS PHASES OF THE REPAIR PROCESS.

TITLE: OFF-LINE DEMONSTRATION OF THE SALTY DEMO MEDICAL SURVIVABLE COLLECTIVE PROTECTION SYSTEM (SALTY DEMO SCPS-M)
DATA SOURCE NO: BDM/A-85-1082-TR
AUTHOR: S.G. CHARLTON, M.B. DOBBS, J.E. MARSH, J.M. CHILDS, S. GLASENER
ORIGINATING ORG: THE BDM CORPORATION, ALBUQUERQUE, NM FOR AEROSPACE MEDICAL DIVISION (AMD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/10/22

COMMENTS: THIS REPORT DOCUMENTS THE PERFORMANCE OF A DEMONSTRATION MEDICAL SURVIVABLE COLLECTIVE PROTECTION SYSTEM (SCPS-M) IN THE TREATMENT OF SIMULATED CASUALTIES DURING THE AIR BASE SURVIVABLITY CAPABILITY DEMONSTRATION (SALTY DEMO) AT SPANGDAHLEM AB, WEST GERMANY. THIS REPORT DESCRIBES SCPS-M SYSTEM PERFORMANCE DATA (INCLUDING THROUGHPUT CAPABILITIES AND ENVIRONMENTAL CHARACTERISTICS), USER SATISFACTION, COGNITIVE WORKLOAD, FATIGUE AND BEHAVIORAL STRESS. THE SCPS-M DEMONSTRATION WAS HELD OFF-LINE FROM THE LARGER SALTY DEMO DEMONSTRATION TO LOAD THE SYSTEM WITH VARIOUS CASUALTY RATES. APPENDICES CONTAIN: PATIENT CLASS DESCRIPTION; CORRESPONDING SALTY DEMO FIXED TREATMENT TIMES (FIRST AND SECOND ECHELON CASE); CASUALTY FLOW SUMMARY DATA; DATA COLLECTION FORMS; AND SALTY DEMO SCPS-M PERSONNEL, SUPPLIES, AND SCHEDULES.

TITLE: AIR BASE SURVIVABILITY ASSESSMENT TEST SUPPORT FINAL REPORT, VOLUME I (DRAFT)
DATA SOURCE NO: BDM/A-84-939-TR
AUTHOR: M.B. DOBBS, J.B. WHITEHEAD, M.R. ENGLAND, C.P. NEUSWANGER
ORIGINATING ORG: THE BDM CORPORATION, ALBUQUERQUE, NM FOR AEROSPACE MEDICAL DIVISION (AMD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/02/06

COMMENTS: THIS REPORT DOCUMENTS MEDICAL COMMUNITY PREPARATION OF THE AIR BASE SURVIVABILITY CAPABILITY DEMONSTRATION (SALTY DEMO) AT SPANGDAHLEM AB, WEST GERMANY. THIS STUDY PROVIDES: DEVELOPMENT AND IMPLEMENTATION OF TOOLS AND METHODOLOGIES FOR DETERMINING INJURIES TO AIR BASE PERSONNEL AS A FUNCTION OF THREAT (GENERATION OF AN EXERCISE

CASUALTY STREAM); DEVELOPMENT OF DATA GATHERING REQUIREMENTS IN SUPPORT OF SALTY DEMO; AND IDENTIFICATION AND DEFINITION OF POST-TEST ANALYSIS METHODOLOGY AND TOOLS. VOLUME I PROVIDES THE METHODOLOGY FOR CASUALTY GENERATION (BOTH CONVENTIONAL AND CHEMICAL) WITH SAMPLE CASUALTY STREAMS; A REVIEW OF REQUIREMENTS FOR SALTY DEMO MEDICAL DATA AND DATA GATHERING REQUIREMENTS AND MECHANISMS.

TITLE: AIR BASE SURVIVABILITY ASSESSMENT TEST SUPPORT FINAL REPORT, VOLUME II: APPENDICES (DRAFT)
DATA SOURCE NO: BDM/A-84-939-TR
AUTHOR: M.B. DOBBS, J.B. WHITEHEAD, M.R. ENGLAND, C.P. NEUSWANGER
ORIGINATING ORG: THE BDM CORPORATION, ALBUQUERQUE, NM FOR AEROSPACE MEDICAL DIVISION (AMD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/02/06

COMMENTS: THIS REPORT DOCUMENTS MEDICAL COMMUNITY PREPARATION FOR THE AIR BASE SURVIVABILITY CAPABILITY DEMONSTRATION (SALTY DEMO) AT SPANGDAHLEM AB, WEST GERMANY. THIS STUDY PROVIDES: DEVELOPMENT AND IMPLEMENTATION OF TOOLS AND METHODOLOGIES FOR DETERMINING INJURIES TO AIR BASE PERSONNEL AS A FUNCTION OF THREAT (GENERATION OF AN EXERCISE CASUALTY STREAM); DEVELOPMENT OF DATA GATHER REQUIREMENTS IN SUPPORT OF SALTY DEMO; AND IDENTIFICATION AND DEFINITION OF POST-TEST ANALYSIS METHODOLOGY AND TOOL. THIS VOLUME PROVIDES EIGHT COMPLEMENTING APPENDICES: MULTI-SERVICE APPROVED CASUALTY CLASSES; BUILDING DIAGRAMS; MASTER EVENTS LISTS; CATEGORIZATIONS OF MULTI-SERVICE SERIOUS AND SLIGHT INJURIES; CHEMICAL INJURY DESCRIPTIONS; CASUALTY GENERATION COMPUTER CODE; CONVENTIONAL INJURY DESCRIPTIONS; AND SAMPLE DATA COLLECTION FORMS.

TITLE: THE EFFECT OF SUSTAINED FIELD OPERATIONS ON URINARY METABOLITES, ELECTROLYTES AND CORTISOL
DATA SOURCE NO: ADA164770
AUTHOR: G.J. KANT, R. SMITH, L. LANDMAN-ROBERTS, L. CARDENALES-ORTIZ, E.H. MOUGEY
ORIGINATING ORG: WALTER REED ARMY INSTITUTE OF RESEARCH (WRAIR), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/01

COMMENTS: A RESEARCH PROJECT CHARACTERIZING INDICATIONS OF STRESS IN MILITARY ENVIRONMENT WAS PERFORMED. THE PROJECT REQUIRED A FIELD EXERCISE TO ASSESS PLATOON PERFORMANCE, FIRST IN REGULAR FATIGUES AND THEN IN MOPP (MISSION ORIENTED PROTECTIVE POSTURE) GEAR. TOTAL URINE OUTPUT WAS COLLECTED AND ANALYZED FOR ELECTROLYTES AND CORTISOL. NO DIFFERENCE WAS FOUND IN THE FIELD TRIALS, HOWEVER, CORTISOL WAS FOUND TO

BE A USEFUL INDICATOR OF STRESS IN SOLDIERS PARTICIPATING IN A SUSTAINED FIELD EXERCISE.

TITLE: STORAGE STUDY OF ELECTROLYTE BEVERAGE FOR NBC ENVIRONMENT
DATA SOURCE NO: NATICK/TR-86/062, ADA172878
AUTHOR: J.J. HOWKER, G. MULLINS, J. HALKIOTIS, J. BRIGGS, P.C. DUNNE, C. CATHCART
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/12/30

COMMENTS: THIS STUDY DOCUMENTS THE EFFECTS OF STORAGE DURATION AND TEMPERATURE ON NBC (NUCLEAR, BIOLOGICAL, OR CHEMICAL) ELECTROLYTE BEVERAGE. THE PHYSICAL AND CHEMICAL CHARACTERISTICS INCLUDED OSMOLALITY, PH, FRUCTOSE, AND CITRIC ACID CONCENTRATIONS. THE NBC ELECTROLYTE BEVERAGE STORED 24 MONTHS AT 4.4 DEGREES CELSIUS (C) AND 21.1 DEGREES C WAS SATISFACTORY. THE PRODUCT STORED 9 TO 12 MONTHS AT 37.7 DEGREES C HAD FLAVOR DETERIORATION. TABLES SHOWING THE RESULTS OF THE PHYSICAL AND CHEMICAL CHARACTERISTICS ARE PRESENTED.

TITLE: RAPID EGRESS AIR LOCKS: A PRELIMINARY INVESTIGATION OF AIR LOCK INLET CONFIGURATIONS
DATA SOUURCE NO: NSWC-TR-85-223, ADB101293
AUTHOR:G.S. ROBINSON, K.A. BUCHBERGER, J.A. BYRNE
ORIGINATING ORG: NAVAL SURFACE WEAPONS CENTER (NSWC), DAHLGREN, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/12/01

COMMENTS: THIS REPORT DOCUMENTS AN INVESTIGATION OF METHODS TO REDUCE AIR LOCK PURGE TIMES TO LIMIT THE IMPACT OF THE COLLECTIVE PROTECTION SYSTEM ON SHIPBOARD OPERATIONS, AND TO STUDY THE FEASIBILITY OF REDUCING AIR FLOW REQUIREMENTS OF THE AIR LOCK WHILE SIMULTANEOUSLY REDUCING PURGE TIMES. FOUR INLET CONFIGURATIONS WERE TESTED WITH DIOCTYLPHALATE (DOP), AN AEROSOL SIMULANT, VARYING FLOW RATES TO DETERMINE HOW QUICKLY A 1000 FOLD REDUCTION IN AEROSOL CONCENTRATION WAS REACHED.

TITLE: DEVELOPMENT AND TECHNICAL EVALUATION OF THE PROTECTIVE ASSEMBLY, HELICOPTER AIR CREWMAN, CHEMICAL, BIOLOGICAL RADIOLOGICAL (CBR), A/P22P-9(V-2) FOR CBR WARFARE PROTECTION OF USMC AIR CREWMEN

DATA SOURCE NO: NADC-85163-60, ADB102972
AUTHOR: D. HERBERT, J. HARDY
ORIGINATING ORG: NAVAL AIR DEVELOPMENT CENTER (NADC), WARMINSTER, PA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/10/31

COMMENTS: THIS REPORT COVERS THE DEVELOPMENT OF THE A/P22P-9(V-2), FROM CONCEPTION IN THE UNITED KINGDOM (UK) TO PRESENT USAGE. IT INCLUDES TESTING PERFORMED BY VARIOUS COUNTRIES AND THE USN/USMC (US NAVY/US MARINE CORPS) ON THE PREDECESSOR UK AR-5. IT ALSO INCLUDES THE DOCUMENTATION REQUIRED BY THE USN TO PERMIT APPROVAL FOR FULL PRODUCTION. REPORT CONTAINS RESULTS OF OPERATIONAL TESTS. NO CHEMICAL PROTECTION FACTORS ARE GIVEN. THE A/P22P-9(V-2) IS A HELICOPTER AIRCREW MASK ASSEMBLY.

TITLE: MEDICAL WARTIME OPERATIONS EFFECTIVENESS EVALUATION: TASK 3 REPORT, A STRUCTURED ANALYSIS METHODOLOGY
DATA SOURCE NO: BDM/A-85-1165-TR
AUTHOR: J.M. WHITEHEAD, G.M. KILBOURNE, C.P. NEUSWANGER, J.E. MARSH, H.E. REILLY, G.A. O'LEARY, C.H. TAPPAN, M.B. DOBBS
ORIGINATING ORG: THE BDM CORPORATION, ALBUQUERQUE, NM FOR US AIR FORCE AEROSPACE MEDICAL DIVISION (AMD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/12/09

COMMENTS: THIS DRAFT REPORT DOCUMENTS THE METHODOLOGY DEVELOPED TO AID MEDICAL PLANNERS AND POLICY MAKERS IN REQUIREMENTS DEFINITION AND PRIORITIZATION OF DEVELOPMENT AND ACQUISITION EFFORTS FOR MEDICAL WARTIME SYSTEM. THIS DRAFT REPORT DEVELOPED REALISTIC THREAT AND CASUALTY ESTIMATION PROCEDURES, CONSTRUCTED A FUNCTIONAL DECOMPOSITION OF THE MEDICAL WARTIME SYSTEM AND DETERMINED MEASURES OF EFFECTIVENESS FOR EVALUATING THE MEDICAL SYSTEM. THIS REPORT PRESENTS AN OVERVIEW OF THE METHODOLOGY DEVELOPMENT AND THE PLANS FOR EXERCISING THE ASSESSMENT METHODOLOGY AND FINALLY, THIS REPORT PRESENTS THE IMPLEMENTATION PLANS FOR THE CONSTRUCTION OF AN EXECUTABLE SYSTEM ASSESSMENT TOOL.

TITLE: RELIABILITY AND MAINTAINABILITY ANALYSIS OF THE PROTECTIVE ASSEMBLY, HELICOPTER AIRCREWMAN, CHEMICAL, BIOLOGICAL, RADIOLOGICAL (CBR) A/P22O-9(V) FOR CBR WARFARE PROTECTION OF USMC AIRCREWMEN
DATA SOURCE NO: NADC-85168-60, ADB102941
AUTHOR: K. HERBERT, J. HARDY
ORIGINATING ORG: NAVAL AIR DEVELOPMENT CENTER (NADC), WARMINSTER, PA
CLASSIFICATION: UNCLASSIFIED/LIMITED

DOCUMENT DATE: 85/12/13

COMMENTS: THIS REPORT COVERS THE RELIABILITY AND MAINTAINABILITY OF THE A/P220-9(V) HELICOPTER AIRCREWMAN CHEMICAL, BIOLOGICAL AND RADIOLOGICAL (CBR) WARFARE PROTECTION SYSTEM. SYSTEM MET OR EXCEEDED THE STANDARDS FOR MISSION RELIABILITY, AVAILABILITY, MEAN TIME BETWEEN FAILURE, AND MEAN TIME TO REPAIR.

TITLE: TRAINING: COMMON TASKS IN NBC DEFENSE, (GE) ARMY BASIC TRAINING
DATA SOURCE NO: T-04-85
AUTHOR: L.S. SAGAN, P.F. DAUBER
ORIGINATING ORG: US ARMY TRAINING AND DOCTRINE COMMAND LIAISON, COLOGNE, WEST GERMANY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/01/29

COMMENTS: THE PURPOSE OF THIS REPORT IS TO IDENTIFY NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) TASKS TAUGHT AND TESTED DURING GERMAN ARMY BASIC TRAINING AND COMPARE US ARMY SKILL LEVEL 1 NBC TASKS. THE REPORT CONCLUDES THAT WITH THE EXCEPTION OF EQUIPMENT DIFFERENCES, (NBC OVERGARMENTS, MASKS WITHOUT DRINKING ADAPTERS, ETC.) THE TRAINING AND TESTING ARE ESSENTIALLY THE SAME AT SKILL LEVEL 1 FOR BOTH ARMIES.

TITLE: TRAINING NBC DEFENSE AT THE UNIT LEVEL, (GE) ARMY ADVANCED INDIVIDUAL TRAINING
DATA SOURCE NO: T-05-85, ADB105005
AUTHOR: L.S. SAGAN, P.F. DAUBER
ORIGINATING ORG: US ARMY TRAINING AND DOCTRINE COMMAND LIAISON OFFICE, COLOGNE, WEST GERMANY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/01/29

COMMENTS: THIS REPORT PROVIDES A LIST OF NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) TASKS (SPECIFIED BY THE GERMAN ARMY REGULATIONS) THAT A GERMAN SOLDIER MUST LEARN DURING HIS TWELVE MONTHS OF SERVICE WITH A UNIT. TASKS INCLUDE: MASK FITTING AND TESTING; NBC DEFENSE FOR SMALL ENGAGEMENTS (COMPANY LEVEL) INCLUDING PROTECTIVE MEASURES FOR ATOMIC BURST AND FOR CHEMICAL, RIOT, AND BIOLOGICAL AGENTS; DECONTAMINATION AT VARIOUS COMPANY LOCATIONS; AND OPTIONAL NBC/MEDICAL TRAINING.

TITLE: CUSTOMER TEST FOR ELIMINATION OF HOT SPOTS (EHS) SYSTEM FOR XM-41 CHEMICAL, BIOLOGICAL (CB) PROTECTIVE MASK
DATA SOURCE NO: TRADOC-TRMS-60698, ADB105353
AUTHOR: W.H. DUNHAM, C.E. ADAMS
ORIGINATING ORG: US ARMY AVIATION BOARD, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/12/11

COMMENTS: THIS REPORT SUMMARIZES USER EVALUATIONS OF THREE CANDIDATE HARNESS SYSTEMS FOR SIMULTANEOUS USE OF THE SPH-4 FLYERS HELMET AND CHEMICAL/BIOLOGICAL (CB) MASK. THE TEST ISSUE WAS TO DETERMINE WHICH OF THE CANDIDATE SYSTEMS IS THE MOST COMFORTABLE AND MOST EFFECTIVE IN ELIMINATING HOT SPOTS WHEN WORN WITH THE SPH-4 HELMET. SYSTEMS TESTED WERE: (1) ILC DOVER 1, ILC DOVER 2, AND THE NEW M-17 HARNESS. PARTICIPANTS WERE PLACED IN A SIMULATOR FOR THREE THREE-HOUR PERIODS, WORE A DIFFERENT HARNESS SYSTEM EACH PERIOD, AND PERFORMED EITHER PILOT OR CO-PILOT DUTIES. TEST DATA INDICATED THAT THE ILC DOVER 1 WAS THE MOST COMFORTABLE AND THE M-17 WAS THE LEAST COMFORTABLE.

TITLE: MICROCLIMATE COOLING AND THE AIRCREW CHEMICAL DEFENSE ENSEMBLE
AUTHOR: F.S. KNOX, G.W. MITCHELL
ORIGINATING ORG: US ARMY AEROMEDICAL RESEARCH LABORATORY (USAARL), FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/01

COMMENTS: THIS DOCUMENT CONTAINS COPIES OF BRIEFING CHARTS AND PHOTOGRAPHS DISCUSSING A HEAT STRESS STUDY PERFORMED USING US ARMY PILOTS. THE STUDY WAS SIX DAYS LONG. PILOTS FLEW IN MISSION ORIENTED PROTECTIVE POSTURE TYPE FOUR (MOPP IV) WITH AND WITHOUT COOLING VESTS. SOME DATA PRESENTED. NO CONCLUSIONS ARE GIVEN.

TITLE: MICROCOMPUTER PROGRAM FOR SIMULATION OF HEAT STRESS
AUTHOR: G.W. MITCHELL, J. ROSARIO, F.S. KNOX
ORIGINATING ORG: US ARMY AEROMEDICAL RESEARCH LABORATORY (USAARL), FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/06/01

COMMENTS: THIS PAPER PRESENTS SAMPLE OUTPUTS FROM A MICRO-COMPUTER PROGRAM FOR SIMULATION OF HEAT STRESS. OUTPUTS INCLUDE RECTAL TEMPERATURE AND HEART RATE AS A FUNCTION OF TIME. INPUTS INCLUDE AMBIENT AIR TEMPERATURE; RELATIVE HUMIDITY; AIR VELOCITY; CLOUD DENSITY;

METABOLIC RATE; AND THE TYPE OF EQUIPMENT WORN BY THE INDIVIDUAL. NO DESCRIPTION OF THE MODEL IS PROVIDED. THE SOURCE CODE IS GIVEN.

TITLE: A PERFORMANCE EVALUATION USING THE IMPERMEABLE CHEMICAL DEFENSE PROTECTIVE ENSEMBLE AND THE STANDARD CHEMICAL DEFENSE ENSEMBLES
DATA SOURCE NO: AD-TR-85-7, ADB090900
AUTHOR: B.J. GUNTER, S.A. MAINQUIST
ORIGINATING ORG: 3246TH TEST WING ARMAMENT DIVISION, EGLIN AFB, FL, FOR LIFE SUPPORT SYSTEMS PROGRAM OFFICE, WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/02/01

COMMENTS: THIS IS THE RESULTS OF A TEST CONDUCTED TO DETERMINE IF RAPID RUNWAY REPAIR (RRR) CREWS, AND F-4, F-111, AND F-15 WEAPONS LOADING PERSONNEL COULD PERFORM THEIR RESPECTIVE TASKS WEARING THE IMPERMEABLE CHEMICAL DEFENSE PROTECTIVE (IMP) ENSEMBLES (WITHOUT CONSIDERING THE LIQUID COOLING VEST), AND THE STANDARD CHEMICAL DEFENSE (SCD) ENSEMBLES. TEST RESULTS SHOWED ALL CREWS COULD COMPLETE TEST EXERCISE TASKS IN SCD AND ALMOST ALL IN IMP. ANECDOTAL DATA ON ENSEMBLES PERFORMANCE ARE GIVEN.

TITLE: PSYCHIATRIC CASUALTIES AMONG U.S. MARINES IN VIETNAM
DATA SOURCE NO: NAVHLTHRSCHC-85-47, ADA167347
AUTHOR: L.A. PALINKAS, P. COBEN
ORIGINATING ORG: US NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/10/01

COMMENTS: THE IDENTIFICATION OF FACTORS ASSOCIATED WITH PSYCHIATRIC CASUALTIES IS CRITICAL BOTH FOR COMBAT CASUALTY CARE AND MEDICAL RESOURCE MANAGEMENT, AND FOR THE SAFEGUARDING OF THE HEALTH AND WELL-BEING OF COMBAT PERSONNEL LONG AFTER HOSTILITIES HAVE CEASED. THIS PAPER EXAMINES THE PSYCHIATRIC CASUALTIES AMONG MARINE CORPS PERSONNEL IN VIETNAM BETWEEN 1965 AND 1972. THE MARINE CORPS IN-PATIENT MEDICAL DATA FILE WAS SEARCHED FOR ALL FIRST HOSPITAL ADMISSIONS WITH A DIAGNOSIS OF MENTAL DISORDER OR COMBAT-RELATED WOUNDS AND INJURIES. THE RELATIVE RISK OF A FIRST HOSPITALIZATION FOR A PSYCHIATRIC DIAGONSIS WAS DETERMINED USING CRUDE INCIDENCE RATES BASED ON THE POPULATION OF MARINE CORPS PERSONNEL WHO SERVED IN VIETNAM, AND RATIOS OF PSYCHIATRIC CASUALTIES TO WOUNDED IN ACTION. THE RATE OF FIRST HOSPITALIZATION FOR ALL PSYCHIATRIC DISORDERS WAS FOUND TO BE 34.3 PER 1000 PERSONS PER YEAR.

LITERATURE REVIEW FOR 1986

TITLE: AIRFIELD DAMAGE REPAIR EXERCISE IN EUROPE, 1982; PROGRESSIVE CRATER REPAIR
DATA SOURCE NO: WES/MP/GL-85-81
AUTHOR: G.M. HAMMITT, L.D. MCCALLISTER
ORIGINATING ORG: US ARMY ENGINEER WATERWAYS EXPERIMENT STATION (WES), GEOTECHNICAL LABORATORY, VICKSBURG, MS AND US ARMY 293RD ENGINEER COMBAT BATTALION (HEAVY), 18TH ENGINEER BRIGADE, APO NEW YORK, NY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/12/01

COMMENTS: THIS AIRFIELD DAMAGE REPAIR TRAINING EXERCISE WAS CONDUCTED IN THREE PHASES. THE FIRST PHASE MET RAPID, THEN SEMIPERMANENT, AND FINALLY PERMANENT REQUIREMENTS. PERCENT COMPACTION, PERCENT MOISTURE AND TIME TO COMPLETION DATA ARE GIVE FOR LARGE CRATERS (SIXTEEN TO TWENTY METER DIAMETER, TWO TO EIGHT METER DEPTH) USING FULL-DEPTH CRUSHED STONE WITH XM19 MALTING, HOT MIX ASPHALT CAP, AND HI-EARLY STRENGTH COONCRETE CAP PROCEDURES. COMPACTION, MOISTURE AND COMPLETION TIMES ARE GIVEN FOR SMALL CRATERS (SIX TO EIGHT METER DIAMETER, 1.5 TO 1.8 METER DEPTH) USING FULL-DEPTH CRUSHED AGGREGATE WITH SAND BLOT, COLD MIX ASPHALT, SILIKAL, AND STONE AND GROUT PROCEDURES. TIME SEQUENCE OF EVENT DATA ARE PROVIDED FOR EACH EXERCISE.

TITLE: GE COMPANY NBC DEFENSE TEAMS ORGANIZATION, EQUIPMENT AND TRAINING
DATA SOURCE NO: T-08-85
AUTHOR: L.S. SAGAN, P.F. DAUBER
ORIGINATING ORG: US ARMY TRAINING AND DOCTRINE COMMAND LIAISON OFFICE, COLOGNE, WEST GERMANY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/07/12

COMMENTS: THIS DOCUMENT CONTAINS NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) TRAINING PROCEDURES FOR THE WEST GERMAN ARMY. EACH UNIT HAS A THREE MAN TEAM RESPONSIBLE FOR THE FOLLOWING NBC DEFENSE FUNCTIONS: COLLECTION OF BIOLOGICAL AND CHEMICAL SAMPLES; DECONTAMINATION OPERATIONS; AND PERFORMANCE OF NBC RECONNAISSANCE. IT WAS RECOMMENDED THAT THE US AND GERMANY DEVELOP A COMMON PERSONNEL DECONTAMINATION PROCEDURE; INCREASE THE NUMBER OF JOINT NBC DECONTAMINATION EXERCISES; AND REVIEW THE EQUIPMENT TO SEE IF US UNITS COULD BENEFIT FROM SOME OF THE WEST GERMAN ITEMS.

TITLE: CHEMICAL WARFARE INDIVIDUAL PROTECTIVE EQUIPMENT BASELINE STUDY
DATA SOURCE NO: AAMRL-TR-85-077
AUTHOR: T.R. HAYES, J.R. CHEVALIER, C.D. PORTER, G.M. JAMES

ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 85/12/01

COMMENTS: SORTIE GENERATION CAPABILITY IS DEGRADED WHEN AIR BASE GROUND PERSONNEL WEAR CHEMICAL WARFARE (CW) IDIVIDUAL PROTECTIVE EQUIPMENT (IPE). THIS DEGRADATION INCLUDES LOSS OF DEXTERITY, RESTRICTED VISION, COMMUNICATION PROBLEMS, PHYSICAL ENCUMBRANCE, AND THERMAL BURDEN. IN ORDER TO MAINTAIN SORTIE GENERATION CAPABILITY IN A CW ENVIRONMENT, THE AIR FORCE MUST HAVE THE ABILITY TO EVALUATE PROPOSED IMPROVEMENTS TO THE IPE PRESENTLY WORN BY GROUND CREW PERSONNEL. THE CWTSAR (CHEMICAL WARFARE THEATER SIMULATION OF AIRBASE RESOURCES) MODEL WAS USED TO SIMULATE THE SORTIE GENERATION CAPABILITY OF A WING OF 72 F-16S OPERATING FROM A CENTRAL EUROPEAN MAIN OPERATING BASE. TWO IPE EFFECTS WERE MODELED: TASK TIME DEGRADATION WAS SIMULATED USING ESTIMATED MULTIPLYING FACTORS TO INCREASE THE NORMAL TIMES NEEDED TO PERFORM F-16 MAINTENANCE, TURNAROUND, AND MUNITIONS ASSEMBLY TASKS; AND THERMAL STRESS WAS SIMULATED BY USING WORK/REST CYCLES. THIS STUDY PRODUCED A BASELINE MEASUREMENT OF THE EFFECTS OF THE PRESENT IPE ON SORTIE GENERATION RATES. USING THESE RESULTS AS A BASELINE, THE RELATIVE EFFECTIVENESS OF IPE IMPROVEMENTS CAN BE EVALUATED.

TITLE: AIRFIELD DAMAGE REPAIR, PAVEMENT REPAIR
DATA SOURCE NO: FC-5-104-1
ORIGINATING ORG: US ARMY ENGINEER SCHOOL, FORT BELVOIR, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 85/10/01

COMMENTS: THIS FIELD CIRCULAR (FC) DESCRIBES RUNWAY AND TAXIWAY REPAIR METHODS TO BE USED BY US ARMY ENGINEER FIELD UNITS TO SUPPORT AIRFIELD DAMAGE REPAIR. THE REPORT ALSO DESCRIBES EMERGENCY RAPID RUNWAY REPAIR (RRR) METHODS USED BY THE US AIR FORCE (USAF). METHODS DESCRIBED INCLUDE: CRUSHED STONE REPAIR WITH FOREIGN OBJECT DAMAGE (FOD) COVER (EITHER AM-2 OR FIBERGLASS MATS), PRE-CAST CONCRETE SLAB (PCS) REPAIR, SAND GRID REPAIR, CONCRETE CAP REPAIR, STONE AND FRONT CAP REPAIR, AND SPALL REPAIR. THE DOCUMENT DISCUSSES MATERIALS, EQUIPMENT, PERSONNEL, AND TECHNIQUES REQUIRED FOR EACH METHOD. IT ALSO INCLUDES DATA DESCRIBING THE SPECIFIC CHARACTERISTICS OF RUNWAY SURFACES AT US AIR BASES IN EUROPE AND KOREA.

TITLE: OPERATIONAL MODELING FOR AVIATION CHEMICAL DEFENSE
AUTHOR: W. SUMMERS
ORIGINATING ORG: ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL/HET), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/01/31

COMMENTS: THIS REPORT COVERS PROGRESS BETWEEN 1 APRIL 1984 AND 31 DECEMBER 1985. THE PURPOSE OF THIS RESEARCH IS TO DEVELOP A METHODOLOGY FOR INCORPORATING THE EFFECTS OF A CHEMICAL WARFARE ENVIRONMENT INTO THE SYSTEM OPERABILITY ANALYSIS. THE GOAL OF THE INTEGRATION IS TO ALLOW FOR THE MODELING AND SIMULATION OF HUMAN/MACHINE SYSTEMS, TO OVERLAY THE EFFECTS OF CHEMICAL STRESSORS ON THE OPERATIONAL PERFORMANCE OF THE OPERATOR, AND THEN TO ANALYZE THE TOTAL HUMAN/MACHINE OPERABILITY. THE MAJOR EMPHASIS APPEARS TO BE PLACED ON LABORATORY TEST BATTERIES, RATHER THAN OPERATIONAL FIELD DATA.

TITLE: WORLD WIDE SPREAD OF CHEMICAL ARMS RECEIVING INCREASED ATTENTION
AUTHOR: L.R. EMBER
ORIGINATING ORG: CHEMICAL AND ENGINEERING NEWS 1986 (APRIL): APRIL 16; 8-16.
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/14

COMMENTS: VERY GOOD GENERAL SUMMARY OF CURRENT GLOBAL CHEMICAL DEFENSE SITUATION. AUTHOR DISCUSSES RECENT USAGES OF AGENT, CHEMICAL INVENTORIES OF MANY NATIONS AND EFFORTS TO CONTROL DISTRIBUTION OF MUNITIONS. DOCUMENTS INCLUDES TABLES LISTING THE COMMERCIALLY AVAILABLE PRECURSORS IN CHEMICAL AGENT SYNTHESIS.

TITLE: LITERATURE REVIEW OF THE VENTILATION CHARACTERISTICS OF SUBTERRANEAN SPACES
DATA SOURCE NO: CRDC-SP-86010, ADC039260
AUTHOR: A. BIRENZVIGE
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT PRESENTS DATA OBTAINED FROM A LITERATURE REVIEW ON SUBTERRANEAN SPACES AND THEIR VENTILATION CHARACTERISTICS. THE AUTHOR LOOKED AT THE FOLLOWING UNDERGROUND SPACES: ROAD AND SUBWAY TUNNELS; SEWER SYSTEMS; MINES; CAVES; UNDERGROUND SHELTERS; AND BASEMENTS. THE AUTHOR CONCLUDED THAT LITTLE WORK HAS BEEN DONE IN THIS FIELD OF RESEARCH, AND RECOMMENDED THAT FURTHER RESEARCH BE

CONDUCTED. SUCH RESEARCH SHOULD CONCENTRATE ON BASEMENTS AND SHELTERS BECAUSE OF THEIR AVAILABILITY.
TITLE: PERFORMANCE OF PROTECTIVE MASKS WHEN CHALLENGED BY DENSE CLOUDS OF CARBON BLACK SMOKE
DATA SOURCE NO: CRDC-TR-86018, ADC038844
AUTHOR: R.V. JOLLIFFE, C.R. ALLAN
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/03/01

COMMENTS: DISCUSSES TEST AND RESULTS IN A STUDY OF THE POTENTIAL MASK-CLOGGING CAPABILITY OF CARBON BLACK SMOKE. THE M17A1 AND XM30 MASKS WERE SUBJECTED TO CONCENTRATIONS OF THE SMOKE WHILE MOUNTED ON A HEAD FORM CONNECTED TO A BREATHING PUMP, OPERATING AT A FLOW RATE OF 40 LITERS/MINUTE. THE M17A1 MASK WAS ALSO EVALUATED WITHOUT ITS RAIN CAPS AND WITHT THE ADDITION OF THE M4 WINTERIZATION KIT, AND THE XM30 MASK WAS EVALUATED WITH THE C2 CANISTER.

TITLE: SALTY NATION EXERCISE REPORT 86-1
ORIGINATING ORG: 50 TFW/CVI, HAHN AIR BASE, GERMANY
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/02/24

COMMENTS: THIS REPORT COVERS SALTY NATION EXERCISE 86-1, PHASE I AND PHASE II. RATINGS ARE GIVEN FOR MANY OPERATIONS WITHIN THE WING. ALSO INCLUDED ARE PROBLEMS THAT WERE EXPERIENCED IN THE EXERCISE THAT COULD AFFECT PERSONNEL SURVIVABILITY. COMMUNICATION DIFFICULTIES, AND SHORTAGES OF NBC ENSEMBLES, AND PERSONNEL NOT REACTING TO THE EXERCISE TOP THE LIST OF PROBLEMS.

TITLE: GENERAL APPENDICES IN SUPPORT OF THREAT ENVIRONMENT DESCRIPTIONS APPENDIX XVI, CHEMICAL-BIOLOGICAL WARFARE
DATA SOURCE NO: FTD-2660F-637-85
ORIGINATING ORG: FOREIGN TECHNOLOGY DIVISION (FTD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/07/15

COMMENTS: THIS DOCUMENT PROVIDES INFORMATION ON THE CBW CAPABILITIES AND DOCTRINES OF SEVERAL COUNTRIES INCLUDING THE SOVIET UNION, SEVERAL WARSAW-PACT NATIONS, ASIAN COMMUNIST COUNTRIES AND SEVERAL MIDDLE EAST COUNTRIES. THE FOLLOWING AREAS ARE DISCUSSED: CBW POLICY AND DOCTRINE, TYPES OF AGENTS AVAILABLE, DEFENSIVE CAPABILITIES, OFFENSIVE CAPABILITIES, TACTICS, PRODUCTION AND STOCKPILING, RESEARCH AND DEVELOPMENT, AND FUTURE TRENDS AND FORECASTS. NUMEROUS TABLES ARE

INCLUDED. TWO ANNEXS ADDRESSING SOVIET ACTIVITY AND AFGHANISTAN AND SOUTHEAST ASIA ARE INCLUDED. GOOD BIBLIOGRAPHY. SUPERCEDES 30 APR 85 DOCUMENT; INFORMATION CUTOFF DATE: 15 JUN 86.

TITLE: PHASE IIA (COMPANY-BATTALION LEVEL) COMBINED ARMS IN A NUCLEAR AND CHEMICAL ENVIRONMENT FORCE DEVELOPMENT TEST AND EXPERIMENTATION (PHASE IIA CANE FDTE)
DATA SOURCE NO: FT 453A, ADB098895
ORIGINATING ORG: TRADOC COMBINED ARMS TEST ACTIVITY, FORT HOOD, TX FOR US ARMY TRAINING AND DOCTRINE COMMAND, FORT MONROE, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/01/01

COMMENTS: THIS IS A COMPREHENSIVE STUDY TO PROVIDE INFORMATION ON THE ABILITY OF ELEMENTS OF BATTALION TASK FORCE TO SUSTAIN OPERATIONS IN A 72-HOUR SCENARIO. TWO TYPES OF SCENARIOS WERE USED: 1) BASELINE (CONVENTIONAL), AND 2) NUCLEAR/CHEMICAL ENVIRONMENT. NO EXECUTIVE SUMMARY OR GENERAL CONCLUSIONS ARE PROVIDED.

TITLE: SOUTHERN RESEARCH EVALUATION OF WORN CHEMICAL-PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIEL, VOLUME III: SUMMARY OF DATA FROM GD VAPOR-PENETRATION TESTS OF 30-DAY-WEAR BATTLE DRESS OVERGARMENT SAMPLES
DATA SOURCE NO: CRDEC-CR-86032
AUTHOR: M.D. HOWARD, R.B SPAFFORD
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS DOCUMENT REPRESENTS DATA OBTAINED FROM VAPOR-PENETRATION TESTS WITH NEAT AND THICKENED GD (SOMAN) ON 221 FABRIC SAMPLES FROM WORN CHEMICAL-PROTECTIVE GARMENTS. TWO SETS OF GARMENTS WERE EVALUATED - 176 SAMPLES OF THE US ARMY'S BATTLE DRESS OVERGARMENTS (BDO) AND 45 SAMPLES OF STANDARD AND PROTOTYPE US MARINE CORPS GARMENTS. THE CUMULATIVE GD PERMEATION AFTER 24 HOURS WAS LESS THEN 2.5 MG/CM2 (MILLIGRAMS PER SQUARE CENTIMETER) IN ALL THE TESTS OF THE MARINE CORPS GARMENTS AND THE ONLY TEST IN THE BDO SAMPLES IN WHICH THE GD PERMEATION CONSISTENTLY EXCEEDED THE DEFINED BREAK-THROUGH AMOUNT WERE THE MULTIPLE CONTAMINATION TESTS.

TITLE: NUSSE3 USER'S GUIDE AND REFERENCE MANUAL
DATA SOURCE NO: CRDC-SP-86009
AUTHOR: R. SAUCIER
ORIGINATING ORG: CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC),

ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS USER'S GUIDE FOR NUSSE3 DESCRIBES THE INPUT DATA; THE PROGRAM OUTPUT WHICH INCLUDES GRID OUTPUT OF IMPACTION PHASE, PERSISTENCE TIMES, DEPOSITION, CONCENTRATION, DOSAGE DIFFERENCE AND AREA COVERAGE. THIS REPORT ALSO INCLUDES PROGRAMMING CONVENTIONS, A GLOSSARY OF IMPORTANT VARIABLES, A GLOSSARY OF SUBROUTINES AND A SUBROUTINE CROSS REFERENCE LISTING.

TITLE: GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS, VOLUME I: MAIN TEXT AND APPENDIXES A.1 THROUGH A.3
DATA SOURCE NO: CRDEC-CR-86053, ADB104980
AUTHOR: D.J. SIBBETT, J.M. SMITH, R.H. MOYER
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT CONTAINS RESULTS FROM AGENT (MUSTARD AND SOMAN (GD)) VAPOR PENETRATION AND PROTECTION TESTS MADE BY GEOMET ON SAMPLES OF WORN PROTECTIVE GARMENTS. THIS IS THE FIRST OF SIX VOLUMES. THIS VOLUME CONTAINS A GENERAL OVERVIEW OF ALL THE TESTS AND PROVIDES SOME SUMMARY STATISTICS. THE VOLUME ALSO CONTAINS DETAILED TEST RESULTS FOR SOME OF THE MUSTARD (HD) PENETRATION TESTS.

TITLE: GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS, VOLUME II: APPENDIXES A.4 THROUGH A.7
DATA SOURCE NO: CRDEC-CR-86053, ADB104698
AUTHOR: D.J. SIBBETT, J.M. SMITH, R.H. MOYER
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS DOCUMENT CONTAINS A PORTION OF THE RESULTS (APPENDIX A.4 THROUGH A.7) OF A GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS. SAMPLES OF US ARMY BATTLE DRESS OVERGARMENTS (BDO) AND MARINE CORPS SECOND WEAR TRIAL PROTECTIVE UNIFORMS WERE EVALUATED BY VAPOR PENETRATION AND VAPOR PROTECTION TEST METHODOLOGY USING MUSTARD (HD) AND SOMAN (GD). A TOTAL OF

186 ARMY BDO AND 45 MARINE CORPS SECOND WEAR TRIAL SAMPLES WERE TESTED USING HD VAPOR PENETRATION PROCEDURES. 153 SAMPLES OF ARMY BDO WERE TESTED WITH HD USING THE MODIFIED ARMY CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC) VAPOR PENETRATION PROCEDURE, AND 165 SAMPLES OF ARMY BDO WERE TESTED WITH GD USING THE CRDC PROCEDURES. RESULTS SUCH AS PENETRATION VERSUS TIME, ABSORBANCE VERSUS CONCENTRATION, AND EVAPORATION VERSUS TIME ARE PRESENTED.

TITLE: GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS, VOLUME III: APPENDIXES A.8, A.9, B.1, AND B.2
DATA SOURCE NO: DEC-CR-86053
AUTHOR: D.J. SIBBETT, J.M. SMITH, R.H. MOYER
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS DOCUMENT CONTAINS A PORTION OF THE RESULTS (APPENDIXES A.8, A.9, B.1 AND B.2) OF A GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS. SAMPLES OF US ARMY BATTLE DRESS OVERGARMENTS (BDO) AND MARINE CORPS SECOND WEAR TRIAL PROTECTIVE UNIFORMS WERE EVALUATED BY VAPOR PENETRATION AND VAPOR PROTECTION TEST METHODOLOGY USING MUSTARD (HD) AND SOMAN (GD). RESULTS SUCH AS PENETRATION VERSUS TIME, ABSORBANCE VERSUS CONCENTRATION, AND EVAPORATION VERSUS TIME ARE PRESENTED.

TITLE: GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS, VOLUME IV: APPENDIXES B.3 AND B.4
DATA SOURCE NO: CRDEC-CR-86053, ADB104705
AUTHOR: D.J. SIBBETT, J.M. SMITH, R.H. MOYER
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS DOCUMENT CONTAINS A PORTION OF THE RESULTS (APPENDIXES B.3 AND B.4) OF A GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS. SAMPLES OF US ARMY BATTLE DRESS OVERGARMENTS (BDO) AND MARINE CORPS SECOND WEAR TRIAL PROTECTIVE UNIFORMS WERE EVALUATED BY VAPOR PENETRATION AND VAPOR PROTECTION TEST METHODOLOGY USING MUSTARD (HD) AND SOMAN (GD). RESULTS SUCH AS PENETRATION VERSUS TIME, ABSORBANCE VERSUS CONCENTRATION, AND EVAPORATION VERSUS TIME ARE PRESENTED.

TITLE: GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS, VOLUME V: APPENDIXES C.1 AND C.2
DATA SOURCE NO: CRDEC-CR-88053, AD3104700
AUTHOR: D.J. SIBBETT, J.M. SMITH, R.H. MOYER
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS DOCUMENT CONTAINS A PORTION OF THE RESULTS (APPENDIXES C.1 AND C.2) OF A GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS. SAMPLES OF US ARMY BATTLE DRESS OVERGARMENTS (BDO) AND MARINE CORPS SECOND WEAR TRIAL PROTECTIVE UNIFORMS WERE EVALUATED BY VAPOR PENETRATION AND VAPOR PROTECTION TEST METHODOLOGY USING MUSTARD (HD) AND SOMAN (GD). DOCUMENT CONTAINS DATA FROM VAPOR PROTECTION TESTS WITH SOMAN (GD) ON 17 SAMPLES OF PROTECTIVE GARMENTS OVER A 30-DAY TIME PERIOD, AND 50 SAMPLES OVER A 22-DAY TIME PERIOD. FOR EACH SAMPLE, THERE WAS DATA FOR ABSORBANCE, PENETRATION, AND CONCENTRATION.

TITLE: GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS, VOLUME VI: APPENDIXES C.3, C.4, AND D
DATA SOURCE NO: CRDEC-CR-88053, AD3104981
AUTHOR: D.J. SIBBETT, J.M. SMITH, R.H. MOYER
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS DOCUMENT CONTAINS A PORTION OF THE RESULTS (APPENDIXES C.3, C.4, AND D) OF A GEOMET EVALUATION OF WORN CHEMICAL PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIALS. SAMPLES OF US ARMY BATTLE DRESS OVERGARMENTS (BDO) AND MARINE CORPS SECOND WEAR TRIAL PROTECTIVE UNIFORMS WERE EVALUATED BY VAPOR PENETRATION AND VAPOR PROTECTION TEST METHODOLOGY USING MUSTARD (HD) AND SOMAN (GD). RESULTS SUCH AS PENETRATION VERSUS TIME, ABSORBANCE VERSUS CONCENTRATION, AND EVAPORATION VERSUS TIME ARE PRESENTED. THIS VOLUME ALSO PRESENTS THE TEST PROCEDURES AND TEST METHODOLOGY FOR THIS STUDY.

TITLE: SOUTHERN RESEARCH EVALUATION OF WORN CHEMICAL-PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIEL, VOLUME II: SUMMARY OF DATA FROM GD VAPOR-PENETRATION TESTS OF MARINE CORPS SAMPLES

DATA SOURCE NO: CRDEC-CR-86032, ADB103313
AUTHOR: M.D. HOWARD, R.B. SPAFFORD
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS REPORT, VOLUME 2 OF A SERIES, CONTAINS EXPERIMENTAL DATA OBTAINED FROM VAPOR PENETRATION TESTS PERFORMED ON 45 SAMPLES OF STANDARD AND PROTOTYPE US MARINE CORPS CHEMICAL PROTECTIVE GARMENTS. THE GARMENTS, WHICH HAD BEEN SUBJECTED TO A WEAR TRIAL OF UNSPECIFIED LENGTH AND CONDITIONS, WERE CONTACTED WITH DROPLETS OF NEAT OR THICKENED SOMAN (GD) IN SINGLE- AND MULTIPLE-EXPOSURE TRIALS. VAPOR PERMEATION THROUGH THE SAMPLES AND EVAPORATION AND DESORPTION OF AGENT FROM THE SURFACE WERE CONTINUOUSLY MONITORED. THIS VOLUME CONTAINS ONLY THE EXPERIMENTAL DATA AS WELL AS PERMEATION AND EVAPORATION CURVES.

TITLE: ENGINEERING DEVELOPMENT OF THE SIMULATOR, DETECTOR TICKETS, CHEMICAL AGENT: TRAINING M256 (TRAINS)
DATA SOURCE NO: CRDEC-TR-86041, ADB104935
AUTHOR: L. KATZOFF, M. RAZULIS
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01
COMMENTS: DISCUSSES THE ENGINEERING DEVELOPMENT PHASE OF THE SIMULATOR, DETECTOR TICKETS, CHEMICAL AGENT: TRAINING, M256 (TRAINS). ITEMS ADDRESSED INCLUDE REQUIREMENTS, DESIGN TESTING, DEVICE SHELF LIFE, EVALUATION REPORTS, RELIABILITY, AVAILABILITY, AND MAINTAINABILITY (RAM) TESTS, AND FABRICATION. OTHER ITEMS DISCUSSED INCLUDE COST AND TRAINING EFFECTIVENESS ANALYSIS AND FUNCTIONAL EFFICIENCY TESTS. AN ACCELERATED ENGINEERING DEVELOPMENT PHASE WAS SUCCESSFULLY EXECUTED AND THE DEVICE WAS ACCEPTED INTO THE ARMY INVENTORY AS A STOCK FUND ITEM.

TITLE: A PACKAGE OF TRANSPORT AND DIFFUSION MODELS FOR BIOLOGICAL AND TOXIN AGENTS
DATA SOURCE NO: CRDEC-TR-86034, ADB105057
AUTHOR. D. WU, D.W. SLOOP
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS DOCUMENT PRESENTS THREE RECENTLY DEVELOPED

GENERAL-PURPOSE MATHEMATICAL MODELS DESIGNED TO ASSESS THE THREAT FROM BIOLOGICAL WARFARE AGENTS, INCLUDING TOXINS. MODEL 1 IS CALLED GAPCAP - A GAUSSIAN MODEL FOR GENERATION OF ASSESSMENT PATTERNS FOR CLOUDS OF AIRBORNE PARTICLES. MODEL 2 IS CALLED THE K-THEORY MODEL. MODEL 3 IS CALLED A TIME-INCREMENT GAUSSIAN OR SEMI-GAUSSIAN MODEL. THE BASIC APPROACH OF EACH MODEL IS PRESENTED, FOLLOWED BY A DESCRIPTION OF COMMON SUBMODELS SHARED BY ALL THREE MODELS. NEXT IS A BRIEF DISCUSSION ON MODEL COMPARISON AND SELECTION WHICH INCLUDES MERITS AND WEAKNESSES OF EACH MODEL. FINALLY, INPUT REQUIREMENTS, SOURCE CODE LISTINGS, AND SAMPLE PRINTED OUTPUTS ARE GIVEN IN THE APPENDICES. THE MINIMALLY DOCUMENTED FORTRAN V SOURCE CODE IS NON-MODULAR AND NON-STRUCTURED.

TITLE: THE DEVELOPMENT OF A DRIVING COURSE FOR ASSESSMENT OF DRIVER PERFORMANCE IN A CB ENVIRONMENT
DATA SOURCE NO: HEL-TN-6-86
AUTHOR: D.M. HARRAH, W.C. RYAN, J.S. ARMOUR
ORIGINATING ORG: US ARMY ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS REPORT DISCUSSES THE DEVELOPMENT OF A DRIVING COURSE USED TO ASSESS DRIVER PERFORMANCE IN A CB (CHEMICAL-BIOLOGICAL) ENVIRONMENT. THE VEHICLES USED IN THE TESTS WERE THE M1 TANK AND THE M2 INFANTRY FIGHTING VEHICLE. CONDITIONS TESTED WERE OPEN HATCH/NO MASK, CLOSED HATCH/NO MASK, CLOSED HATCH/XM40 MASK, CLOSED HATCH/XM25 MASK, AS WELL AS DAY AND NIGHT. DATA IS INCLUDED IN THE APPENDICES. THE TEST WAS NOT USEFUL IN DIFFERENTIATING BETWEEN THE XM25 AND XM40 MASKS OR OPEN AND CLOSED HATCH CONDITIONS.

TITLE: VALUE ENGINEERING STUDY OF THE M51 SHELTER SYSTEM,
DATA SOURCE NO: CRDEC-CR-86054, ADB104465
AUTHOR: C.B. DAVIS, A.H. SAMUEL
ORIGINATING ORG: BATTELLE-COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT PRESENTS RESULTS FROM A STUDY OF THE FIELD EXPERIENCE OF THE M51 TRAILER-TRANSPORTABLE INFLATABLE COLLECTIVE PROTECTION SHELTER SYSTEM. THE SYSTEM WAS DESIGNED AND PURCHASED FOR USE BY ARMY MEDICAL SERVICE UNITS. THE STUDY LOOKED AT FIELD EXPERIENCE WITH M51 RELIABILITY, MAINTAINABILITY, TRAINING, SAFETY, HUMAN FACTORS, HANDLING AND PACKAGING, AND TECHNICAL DATA. PROBLEMS WERE IDENTIFIED AND

IMPROVEMENTS/CORRECTIONS WERE RECOMMENDED. PHOTOGRAPHS AND DIAGRAMS INCLUDED.

TITLE: TOXINS
DATA SOURCE NO: FC 3-9-1
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/02/01

COMMENTS: THIS FIELD CIRCULAR DISCUSSES TOXINS IN GENERAL, AND IS USED AS AN INTRODUCTION TO THE TOPIC OF TOXINS. INCLUDED ARE AN INTRODUCTION TO TOXINS, CLASSIFICATION OF TOXINS INTO CYTOTOXINS AND NEUROTOXINS, GENERAL INFORMATION ABOUT TOXINS, METHODS OF DISSEMINATION, CHARACTERISTICS OF SPECIFIC TOXINS, AND A SUMMARY OF CHARACTERISTICS. CHARACTERISTICS DISCUSSED ARE: TYPE, PHYSICAL/CHEMICAL PROPERTIES, MODE OF ACTION, ROUTE OF ENTRY, SYMPTOMS TREATMENT, DECONTAMINATION, AND COMMENTS. TOXINS DISCUSSED ARE: BATRACHOTOXIN (VERATRIDINE, ACONITINE, GRAYANOTOXIN), BOTULINUM TOXIN, MICROCYSTIN (FDF, FAST DEATH FACTOR), PALYTOXIN, POISONOUS SNAKE VENOMS (NONE DISCUSSED EXPLICITELY), RICIN, SAXITOXIN (STX), SCORPION VENOM, STAPHYLOCOCCUS ENTEROTOXIN (SEB), TETRO DOTOXIN (TTX), AND TRICHOTHECENE MYCOTOXINS (YELLOW RAIN, T2 TOXINS).

TITLE: SYSTEM TO PROTECT MOBILE VEHICLES AGAINST CHEMICAL AGENT ATTACK, PHASE II
DATA SOURCE NO: CRDEC-CR-86033, ADB103851
AUTHOR: S.T. DINOVO
ORIGINATING ORG: GUILD ASSOCIATES, INC., COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS DOCUMENT EXAMINED THE FEASIBILITY OF DEVELOPING A LIGHTWEIGHT SYSTEM TO PROTECT MOBILE VEHICLES FROM CHEMICAL ATTACK. PHASE I DEALT WITH REGENERATING FILTERS FOR CHEMICAL AGENT APPLICATIONS. IT WAS INITIALLY THOUGHT THAT VEHICLE ENGINE HEAT WOULD PROVIDE THE DRIVING FORCE IN REGENERATION OF THESE FILTERS, BUT THIS CAUSED WATER VAPOR PROBLEMS. THE PROBLEMS COULD BE SOLVED BY HEATING THE ADSORBENT BED WITH MICROWAVE ENERGY. IT WAS CONCLUDED IT WAS EASIER TO REMOVE WATER WITH AN AIR CONDITIONING SYSTEM. THE PROTOTYPE WAS NOT FULLY DEVELOPED.

TITLE: ENVIRONMENTAL FATE ASSESSMENTS OF CHEMICAL AGENT SIMULANTS AND DECONTAMINANTS
DATA SOURCE NO: CRDC-CR-86016, ADB101095
AUTHOR: P.H. HOWARD, G.W. SAGE, J.P. ROBINSON, J. JACKSON
ORIGINATING ORG: SYRACUSE RESEARCH CORPORATION, SYRACUSE, NY FOR CHEMICAL RESEARCH AND DEVELOPMENT CENTER (CRDC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THE PURPSOSE OF THIS STUDY WAS TO ASSESS THE ENVIRONMENTAL HAZARDS OF 21 CHEMICAL AGENT SIMULANTS OR DECONTAMINANTS. LITERATURE SEARCHES WERE CONDUCTED AND, WHERE EXPERIMENTAL DATA WAS NOT AVAILABLE, ESTIMATES OF THE ENVIRONMENTAL FATE WERE BASED ON THE CHEMICAL'S PROPERTIES. RESEARCH NEEDS WERE ALSO NOTED. FOR EACH AGENT/DECONTAMINANT DATA IS PROVIDED FOR: FATE WHEN RELEASED ON/IN LAND, WATER, AIR; INTERACTIONS WITH THESE MEDIA; CONCENTRATIONS IN PLANTS, ANIMALS, FOODS, HUMANS; PROBABLE ROUTES OF HUMAN EXPOSURE; AND EFFECTS ON THE HUMAN BODY. REFERENCES ARE PROVIDED FOR EACH SIMULANT/DECONTAMINANT LISTING.

TITLE: PARAMETERS FOR HEAT STRESS, CHEMICAL HAZARD AND PROTECTIVE CLOTHING ANALYSES
DATA SOURCE NO: NATICK/TN-86/005
AUTHOR: D.C. RIDGEWAY
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS DOCUMENT DISCUSSES THE HEAT PROBLEM ENCOUNTERED WHILE WEARING CHEMICAL PROTECTIVE CLOTHING. THE OBJECTIVE IS TO EVENTUALLY IMPROVE THE CLOTHING CONCEPT TO A POINT WHERE IT WILL PREVENT HEAT STRESS AS WELL AS PROTECT FROM EXTERNAL CHEMICAL CHALLENGES. TWO TYPES OF COOLING VESTS ARE DISCUSSED ALONG WITH THEIR ADVANTAGES AND DISADVANTAGES. CHARTS CONTAINING INFORMATION ON THE PHYSICAL DEMANDS REQUIRED BY DIFFERENT TYPES OF WORK AND OTHER CHARACTERISTICS OF THE PERSONNEL AND VEHICLES ARE PRESENTED.

TITLE: NBC RECONNAISSANCE
DATA SOURCE NO: FC 3-19
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MONROE, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE 86/08/01

COMMENTS: THIS REPORT DESCRIBES IN DETAIL THE ARMY NUCLEAR,

BIOLOGICAL AND CHEMICAL (NBC) RECONNAISSANCE OPERATIONS. CHEMICAL AGENTS, DETECTION METHODS AND FIELDED CHEMICAL DETECTION EQUIPMENT ARE SUMMARIZED. RADIOLOGICAL AND BIOLOGICAL RECONNAISSANCE ARE ALSO DISCUSSED. APPENDIX A DESCRIBES OPERATIONS IN SPECIAL ENVIRONMENTS SUCH AS DESERTS, URBAN AREAS OR IN EXTREME COLD WEATHER (NOTE: CHEMICAL AGENTS CANNOT BE DETECTED IN SOLID FORM).

TITLE: AERIAL DETECTION FY84/85 DUGWAY FLIGHT TRIALS,
DATA SOURCE NO: CRDEC-CR-86029, ADB104077
AUTHOR: D.J. CHENEVERT, M. WILKINS, D. BOLT, A. PRICE
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, NATIONAL SPACE TECHNOLOGY LABORATORIES (NSTL), MS, FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: TESTS WERE CONDUCTED AT DUGWAY PROVING GROUND, UTAH, TO DETERMINE THE FEASIBILITY OF DETECTING CHEMICAL VAPORS WITH POINT DETECTORS ON HELICOPTER PLATFORMS AND TO GENERATE A CHEMICAL DETECTION DATA BASE FOR HELICOPTERS. OPTIMUM VAPOR SAMPLING LOCATIONS ARE IDENTIFIED. LEVELS OF LIQUID PPARTICULATE PICKUP FROM FLYING OVER, LANDING IN, AND TAKING OFF FROM CONTAMINATED AREAS WERE DETERMINED. AREAS OF FREQUENT PICK-UP WERE NOTED FOR THE UH-1H HELICOPTER FOR FLIGHT OVER DESERT AND GRASSY TERRAINS. TEST DATA INDICATES NORMAL HELICOPTER FLIGHT IS AN EFFECTIVE MEANS OF REDUCING CONTAMINATION ON THE EXTERIOR SKIN OF THE HELICOPTER.

TITLE: NBC HANDBOOK
DATA SOURCE NO: FC 3-7
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MONROE, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS US ARMY MANUAL PRESENTS DETAILED INFORMATION FOR CHEMICAL STAFF PERSONNEL AND LEADERS ON THE AREAS OF CONTAMINATION AVOIDANCE, PROTECTION, AND DECONTAMINATION OF NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) HAZARDS. ALSO ADDRESSES SMOKE OPERATIONS AND LOGISTICS. SPECIFIC TOPICS DISCUSSED INCLUDE NBC WARNING AND REPORTING SYSTEMS, NBC CONTAMINATION AVOIDANCE, PROTECTION AND DECONTAMINATION, SMOKE OPERATIONS, FLAME FIELD EXPEDIENTS, NBC DEFENSE EQUIPMENT, MARKING OF CONTAMINATED AREAS, MAP SYMBOLS, AND TACTICAL OPERATIONS.

TITLE: MUSTARD GAS: THE SCIENCE OF H
AUTHOR: J. MEDEMA
ORIGINATING ORG: PRINS MAURITS LABORATORY, RIJSWIJK, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS REPORT CONTAINS EXCELLENT BACKGROUND INFORMATION ON THE HISTORY, NOMENCLATURE, PREPARATION, PROPERTIES, MILITARY USE, EFFECTS, DOSES, AND PROTECTION AGAINST MUSTARD AGENTS INCLUDING MUSTARD (H), DISTILLED MUSTARD (HD), NITROGEN MUSTARD (HN), MUSTARD LEWISITE (HL) AND OTHERS.

TITLE: HAZARD ASSESSMENT GUIDELINE
DATA SOURCE NO: CRDEC-CR-86023, ADC040129
AUTHOR: R.A. HOWD, R.T. PODOLL
ORIGINATING ORG: SRI INTERNATIONAL, MENLO PARK, CA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPOR. IS A GUIDE TO THE USE OF THE PROPOSED AUTOMATIC CHEMICAL AGENT ALARM AGENT HAZARD CARDS AND AN EXPLANATION OF THEIR DEVELOPMENT. TOXICITY OF G, V, AND H AGENTS ARE BRIEFLY REVIEWED, AND ESTIMATES ARE PROVIDED FOR THE VAPOR HAZARD OVER TIME FOR VARIOUS AGENT CONCENTRATIONS, CORRESPONDING TO ACADA READINGS. DETAILED CALCULATIONS OF VAPOR HAZARD ARE CONTAINED IN AN APPENDIX.

TITLE: NIGHT RECONNAISSANCE OPERATIONS IN MISSION ORIENTED PROTECTIVE POSTURE
DATA SOURCE NO: BRL-IMR-861
AUTHOR: C.H. WICK, J.A. MORRISSEY, J.T. KLOPCIC
ORIGINATING ORG: BALLISTIC RESEARCH LABORATORY, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/02/01

COMMENTS: PRESENTED THE DEGRADATION EFFECTS OF IPE ONE NIGHT RECONNAISSANCE OPERATIONS. ONE ANALYSIS OF VARIOUS OPERATIONS SUCH AS ARMOR, MAINTENANCE, MISSILE, AND SIGNAL. THE GROUP USED LINIAR REGRESSION TO ESTIMATE THE CHEMICAL EQUIPMENT DEGRADATION ON VARIOUS MISSION TASKS. NUMERICAL SURVEY CONSIDERING THE WEARING OF EQUIPMENT PRESENTED. NO SURVEYS INCLUDED. RESULTS TABULATED. APPENDIX ON WEATHER CONDITIONS AND REGRESSION ANALYSIS.

TITLE: ON THE PROTECTION FROM EXPOSURE TO CHEMICAL WARFARE AGENTS PROVIDED BY A BUILDING
DATA SOURCE NO: CRDEC-TR-86026, ADC039521
AUTHOR: A. BIRENZVIGE
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/04/01

COMMENTS: THIS DOCUMENT DISCUSSES A THEORETICAL MODEL (EQUATIONS) THAT ESTIMATE EXPOSURE TO CHEMICAL AGENTS INSIDE A BUILDING. DATA, RESULTS, AND CONCLUSION ARE ALL CLASSIFIED. EXCELLENT REFERENCE MATERIAL.

TITLE: INTEGRATED CONCEPT FOR PHYSIOLOGY, PSYCHOLOGY, AND PERFORMANCE
DATA SOURCE NO: USAARL LR-86-3-3-2
AUTHOR: G.W. MITCHELL
ORIGINATING ORG: US ARMY AEROMEDICAL RESEARCH LABORATORIES (USAARL), FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/02/01

COMMENTS: THIS DOCUMENT OUTLINES AN ATTEMPT TO INTEGRATE THE EFFECTS OF PHYSIOLOGY AND PSYCHOLOGY ON PERFORMANCE. THE EFFECTS OF VARIOUS CONDITIONS ARE DESCRIBED QUALITATIVELY. THREE HYPOTHETICAL SCENARIOS ARE ALSO PROVIDED ALONG WITH QUANTITATIVE ESTIMATES OF PERFORMANCE; HOWEVER, IT IS NOT CLEAR HOW THE AUTHOR DETERMINED THE RESULT. SOME OF THE FACTORS WHICH INCREASE TOLERANCE INCLUDE: ACCLIMATIZATION, AIR MOVEMENT, PHYSICAL FITNESS, WORK-REST CYCLE OPTIMIZATION, INSULATION AND SHIELDING, PHARMACEUTICAL INTERVENTION, AND MICROCLIMATE COOLING. FACTORS WHICH DECREASE TOLERANCE INCLUDE: DISEASE, EXHAUSTION, DEHYDRATION, HIGH WORKLOAD, BLOOD POOLING, STARVATION, CHEMICAL DEFENSE GARMENTS, AND BUTTONED-UP VEHICLES.

TITLE: COMBAT MAINTENANCE CAPABILITY PROJECT: FINDINGS AND COMPUTER SIMULATION RESULTS
DATA SOURCE NO: AFHRL-TR-86-46
AUTHOR: J.M. DUNIGAN, G.E. DICKEY, M.B. BORST, D. NAVIN, D.P. PARHAM, R.E. WEIMER, T.M. MILLER
ORIGINATING ORG: GENERAL DYNAMICS, FORT WORTH, TX FOR US AIR FORCE HUMAN RESOURCES LABORATORY (AFHRL), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: SECOND IN A SERIES OF THREE REPORTS WHOSE OBJECTIVES WERE TO DEVELOP METHODOLOGIES AND EXAMINE DIFFERENCES BETWEEN CURRENT PEACETIME MAINTENANCE AND FUTURE COMBAT MAINTENANCE. ISSUES EXAMINED CONCERN AIRCRAFT BATTLE DAMAGE REPAIR (ABDR), CHEMICAL WARFARE EFFECTS, ALTERNATE MAINTENANCE PROCEDURES, ORGANIZATIONS AND WARTIME CRITICAL TASKS. MAINTENANCE CHANGES WHICH CAN IMPROVE SORTIE GENERATION CAPABILITY INCLUDE HAVING ABDR PERSONNEL AVAILABLE AT THE START OF THE CONFLICT; REORGANIZING PERSONNEL INTO FEWER, MORE BROADLY TRAINED TYPES; MODIFYING CURRENT ON-EQUIPMENT MAINTENANCE PROCEDURES TO EXPEDITE REPAIR TIMES AND REDUCE PERSONNEL CREW REQUIREMENTS; AND ELIMINATING OR DEFERRING MAINTENANCE FOR NON-MISSION CRITICAL AIRCRAFT SUBSYSTEMS.

TITLE: IMPROVED AIR PURIFICATION SYSTEMS DEVELOPMENT WASTE HEAT INTEGRATION STUDIES
DATA SOURCE NO: CRDEC-CR-87019
AUTHOR: R.N. SCHMIDT
ORIGINATING ORG: LIFE SYSTEMS, INC., CLEVELAND, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS DOCUMENT DESCRIBES AN INTEGRATION STUDY OF A LOW TEMPERATURE REGENERATIVE FILTER SYSTEM AND A WASTE HEAT SYSTEM FOR THE M-3 BRADLEY FIGHTING VEHICLE. TOPICS COVERED INCLUDE PHYSICAL DESCRIPTIONS OF THE AIR PURIFICATION SYSTEM (APS), THE WASTE HEAT SYSTEM (WHS), BACKPRESSURE OPTIMIZATION, OPERATING PARAMETERS, PHYSICAL INTEGRATION, AND ADAPTATION TO TURBINE-POWERED VEHICLES. THE OBJECTIVE OF THE DEVELOPMENT WAS TO RESOLVE DEFICIENCIES ASSOCIATED WITH FILTRATION TECHNOLOGIES USED IN EXISTING NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) COLLECTIVE PROTECTION EQUIPMENT (CPE).

TITLE: COMBAT MAINTENANCE CAPABILITY PROJECT: METHODOLOGY
DATA SOURCE NO: AFHRL-86-47
AUTHOR: J.M. DUNIGAN, G.E. DICKEY, M.B. BORST, D. NAVIN, D.P. PARHAM, R.E. WEIMER, T.M. MILLER
ORIGINATING ORG: GENERAL DYNAMICS, FORT WORTH, TX FOR AIR FORCE HUMAN RESOURCES LABORATORY (AFHRL), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS REPORT DETAILS THE PROCEDURES, TECHNIQUES, AND METHODS USED DURING THE CONDUCT OF THE COMBAT MAINTENANCE CAPABILITY (CMC) PROJECT. THE REPORT INCLUDES: DISCUSSIONS OF THE SCENARIO USED; AN

EVALUATION OF AVAILABLE COMPUTER MODELS; IDENTIFICATION OF THE EFFECTS OF COMBAT ON MAINTENANCE; ANALYSIS OF KEY MAINTENANCE ISSUES; AND PRESENTS RESULTS FROM SURVEYS PERFORMED DURING THE STUDY.

TITLE: DEVELOPMENT OF A DECONTAMINATION KIT, INDIVIDUAL EQUIPMENT
DATA SOURCE NO: CRDEC-CR-87006
AUTHOR: F.J. VANCHERI
ORIGINATING ORG: MINE SAFETY APPLIANCES CO., MURRYSVILLE, PA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: DESCRIBES DESIGN AND DEVELOPMENT OF CHEMICALLY TREATED TOWELETTES TO BE USED FOR DECONTAMINATING PERSONAL EQUIPMENT SUCH AS RIFLE, HOOD, GLOVES, AND BOOTS. THE XM280 DECONTAMINATION KIT, INDIVIDUAL EQUIPMENT (DKIE) CONSISTS OF 20 INDIVIDUAL TWO-PIECE PLASTIC PACKAGES, EACH CONTAINING ONE DECON 1 PACKET AND ONE DECON 2 PACKET, WHICH ARE ESSENTIALLY ENLARGED VERSIONS OF THE COMPONENTS IN THE M258A1 SKIN DECONTAMINATION KIT. THE 20 PACKAGES ARE CARRIED IN A METAL M548 AMMUNITION BOX. ILLUSTRATIONS AND VARIOUS TEST RESULTS ARE INCLUDED.

TITLE: FORTRAN PROGRAM TO PREDICT RECTAL TEMPERATURE AND HEART RATE RESPONSE OF A PERSON WORKING IN MOPP-4
DATA SOURCE NO: HEL-TN-4-86, ADA168326
AUTHOR: P.G. HARNDEN
ORIGINATING ORG: HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: DESCRIBES FORTRAN PROGRAM DEVELOPED TO SIMULATE MULTIPLE WORK AND RECOVERY CYCLES FOR A SOLDIER IN FULL NUCLEAR, BIOLOGICAL, AND CHEMICAL PROTECTIVE GEAR (MISSION-ORIENTED PROTECTIVE POSTURE LEVEL 4). THE PROGRAM PREDICTS THE SOLDIER'S RECTAL TEMPERATURE AND HEART RATE RESPONSE TO WORK PERFORMED IN MOPP-4 UNDER VARIOUS CLIMATIC CONDITIONS. THE FORMULAS USED ARE THOSE DEVELOPED FROM PREVIOUS HUMAN STUDIES. INPUTS INCLUDE CLIMATIC PARAMETERS AND WORK/REST CYCLE DURATIONS.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS NUCLEAR/BIOLOGICAL/CHEMICAL LITERATURE SEARCH
DATA SOURCE NO: PM TRADE-7070-44, ADB100133
AUTHOR: D.C. GRIFFIN, W.L. DOWLER, H. SCHWELLENBACH
ORIGINATING ORG: CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CA FOR DEPARTMENT OF THE ARMY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/01/01

COMMENTS: THIS REPORT IS A LITERATURE SEARCH ON THE SIMULATION OF AREA WEAPONS EFFECTS (SAWE). IT CONTAINS DOCUMENTATION BEHIND AN INDEX FOR A LITERATURE DATA BANK, ALSO GIVEN IN THE REPORT. SUBJECT AREAS INCLUDE: NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) SIMULATION, DETECTION, DECONTAMINATION, CASUALTY ASSESSMENT, TRAINING MODULES AND WARGAMING. SOURCE DATA BASES INCLUDE: DEFENSE TECHNICAL INFORMATION CENTER (DTIC), NATIONAL TECHNICAL INFORMATION SERVICE (NTIS), NTIS CA (CHEMICAL ABSTRACTS), AND BIOSIS PREVIEWS NTIS. APPROXIMATELY 1500 DOCUMENTS ARE LISTED.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS BEST TECHNOLOGICAL APPROACH OR NUCLEAR/BIOLOGICAL/CHEMICAL TRAINING SYSTEMS,
DATA SOURCE NO: PM TRADE-7070-43-VOL-1, ADB103513
AUTHOR: S.E. ASPLUND, R.A. BEAUDET, R.M. CLAYTON, W.L. DOWLER, K.R. EKMAN, J.F. FERRALL, N.W. FERRARO, D.C. GRIFFIN, D.D. LAWSON, D.P. MAYNARD
ORIGINATING ORG: CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CA FOR DEPARTMENT OF THE ARMY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS REPORT RECOMMENDS THE BEST TECHNOLOGICAL APPROACH (BTA) FOR DEVELOPMENT OF NUCLEAR/BIOLOGICAL/CHEMICAL (NBC) TRAINING DEVICES AS PART OF THE SIMULATION OF AREA WEAPONS EFFECTS (SAWE) PROJECT. THE GOAL WAS TO PROVIDE THE REALISM NECESSARY FOR EFFECTIVE TRAINING, WITH THE ULTIMATE GOAL OF SIGNIFICANTLY REDUCING BATTLEFIELD CASUALTIES. THIS REPORT SUMMARIZES THE SAWE PROJECT AND THE NBC BTA TASK. IT ALSO CONTAINS THE CONCLUSIONS AND RECOMMENDATIONS WHICH RESULTED FROM THE TASK.

TITLE: CONCEPT EVALUATION OF M1E1 NBC 72-HOUR TEST
DATA SOURCE NO: 4-CEP195, ADB100557
AUTHOR: S.L. ELLIS, M.A. JOHNSON, T.M. RAUCH, M. ELLIOTT, N.A. PIMENTAL, H.R. SMITH
ORIGINATING ORG: US ARMY TRAINING AND DOCTRINE COMMAND, FORT HOOD, TX FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FREDERICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED

DOCUMENT DATE: 86/01/1

COMMENTS: THE CONCEPT EVALUATION WAS CONDUCTED BY THE US ARMY ARMOR AND ENGINEER BOARD AT FORT KNOX, KY. THE TEST RESULTS WILL BE USED TO DESIGN FOLLOW-ON STUDIES AND TO DEFINE COMMAND GUIDANCE CONCERNING DECISION RISK CRITERIA FOR OPERATIONS IN A CONTAMINATED ENVIRONMENT. THE TEST RESULTS SHOWED THAT EVEN WITH MICROCLIMATE COOLING, CONTINUOUS OPERATIONS IN A CONTAMINATED ENVIRONMENT HAVE LIMITS. THEY HIGHLIGHT THE DIFFERENCES IN ERFORMANCE BETWEEN THE M60A3, M1, AND M1E1 TANK SYSTEMS IN A CONTAMINATED ENVIRONMENT. THE REPORT DISCUSSES THE OBSERVED PSYCHOLOGICAL AND PHYSIOLOGICAL PERFORMANCE OF 60 ARMOR CREWMEN PERFORMING TYPICAL TASKS IN A IMULATED CONTAMINATED COMBAT ENVIRONMENT. OPERATIONAL PERFORMANCE WAS COMPARED TO ARMY TRAINING AND EVALUATION PROGRAM (ARTEP) STANDARDS FOR PLATOON AND INDIVIDUAL CREW TASKS.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS NUCLEAR AND BIOLOGICAL SCENARIOS
DATA SOURCE NO: PM TRADE-7070-45, ADB101774
AUTHOR: D.C. GRIFFIN, W.L. DOWLER, N.W. FERRARO
ORIGINATING ORG: JET PROPULSION LABORATORY (JPL), PASADENA, CA FOR DEPARTMENT OF THE ARMY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THE NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) SCENARIOS RELATE CURRENT BEST TECHNOLOGICAL APPROACHES (BTA) TO NBC TRAINING SIMULATION WITH ARMY TRAINING AND EVALUATION (ARTEP) MISSIONS AND NBC COMMON MODULE TASKS TO DEFINE TRAINING DEVICE TECHNICAL PARAMETERS, TASKS, CONDITIONS, AND STANDARDS ARE DESCRIBED FOR SQUAD THROUGH BATTALION ELEMENTS. TRAINING ACTIVITIES, DEVICES, AND FUNCTIONS ARE IDENTIFIED WITH TECHNICAL PARAMETERS AND REQUIREMENTS.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS BEST TECHNOLOGICAL APPROACH FOR NUCLEAR/BIOLOGICAL/CHEMICAL TRAINING SYSTEMS
DATA SOURCE NO: PM TRADE-7070-42-VOL-3, ADB103515
AUTHOR: S.E. ASPLUND, R.A. BEAUDET, R.M. CLAYTON, W.L. DOWLER, K.R. EKMAN, J.F. FERRALL, N.W. FERRARO, D.C. GRIFFIN, D.D. LAWSON, D.P. MAYNARD
ORIGINATING ORG: CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CA FOR DEPARTMENT OF THE ARMY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS IS VOLUME 3 OF A 3 VOLUME REPORT ON THE BEST

TECHNOLOGICAL APPROACH FOR THE SIMULATION OF NUCLEAR/BIOLOGICAL/CHEMICAL TRAINING DEVICES AS PART OF THE SIMULATION OF AREA WEAPONS EFFECTS (SAWE). VOLUME 3, THE APPENDICES, CONSISTS OF THE SUPPORTING DOCUMENTS AND EXPERIMENTAL DATA. THIS EFFORT CONCERNED EVALUATING THE ARMY'S CURRENT NBC SIMULATION METHODS FOR TRAINING AND RECOMMENDING IMPROVEMENTS AND FUTURE AREAS OF DEVELOPMENT.

TITLE: SIMULATION OF AREA WEAPONS EFFECTS BEST TECHNOLOGICAL APPROACH OR NUCLEAR/BIOLOGICAL/CHEMICAL TRAINING SYSTEMS
DATA SOURCE NO: PM TRADE-7070-43-VOL-2, ADB103514
AUTHOR: S.E. ASPLUND, R.A. BEAUDET, R.M. CLAYTON, W.L. DOWLER, K.R. EKMAN, J.F. FERRALL, N.W. FERRARO, D.C. GRIFFIN, D.D. LAWSON, D.P. MAYNARD
ORIGINATING ORG: CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CA FOR DEPARTMENT OF THE ARMY, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS IS VOLUME 2 OF A 3 VOLUME REPORT ON THE BEST TECHNOLOGICAL APPROACH (BTA) FOR THE SIMULATION OF NUCLEAR/BIOLOGICAL/CHEMICAL (NBC) TRAINING DEVICES AS PART OF THE SIMULATION OF AREA WEAPONS EFFECTS (SAWE). THE PROJECT GOAL IS A REALISTIC SIMULATION OF NBC EFFECTS FOR FORCE-ON-FORCE TRAINING EXERCISE. THIS VOLUME PROVIDES STUDY BACKGROUND INFORMATION, METHODOLOGY, AND BTA FOR EACH SYSTEM ELEMENT. IT IS ORIENTED TOWARDS ARMY ORGANIZATIONS, CHEMICAL TRAINING CONSIDERS BOTH PERSISTENT AND NON-PERSISTENT AGENTS. INTEGRATION OF THE CHEMICAL AGENT MONITOR (CAM) WITH THE JET PROPULSION LABORATORY (JPL) PERSISTENT CHEMICAL AGENT SIMULANT (PCAS) IS DISCUSSED.

TITLE: PROCEEDINGS OF THE SECOND MEETING OF THE JOINT SERVICES TECHNICAL WORKING GROUP FOR CB MINI-MICROSENSORS
DATA SOURCE NO: CRDEC-SP-86020
AUTHOR: A. SILVESTRI, L. KATZOFF
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS MEETING WAS HELD TO GENERATE AN INITIAL DETECTOR DATA BASE FOR A CHEMICAL AND BIOLOGICAL (CB) MINI-DETECTOR CONTRACT TO BE LET BY THE CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC). COMPREHENSIVE FACT SHEETS ARE PRESENTED ON THE FOLLOWING CHEMICAL AGENT DETECTION TECHNOLOGIES: OPTICAL WAVEGUIDE DEVICES, SURFACE ACOUSTIC WAVE DETECTORS, INDIVIDUAL CHEMICAL AGENT DETECTORS, MINI-ELECTROCHEMICAL DETECTORS, AND PIEZOELECTRIC CRYSTALS WITH PATTERN

RECOGNITION. BIOLOGICAL TECHNOLOGIES PRESENTED INCLUDE: SOLID STATE IMMUNOSENSORS, RECEPTOR BASED SENSORS, CHEMFET'S (CHEMICALLY SENSITIVE FIELD EFFECT TRANSITORS) AND IMMUNOASSAY DETECTORS. ALSO PRESENTED IS A GOOD GENERAL DISCUSSION TRANSCRIBED FROM THE MEETING.

TITLE: DIAZEPAM AND ITS EFFECTS ON PSYCHOPHYSIOLOGICAL MEASURES OF PERFORMANCE
DATA SOURCE NO: AFAMRL-TR-85-036, ADA168750
AUTHOR: A.P. RIZZUTO, G.F. WILSON, R.E. YATES, R. PALMER
ORIGINATING ORG: SYSTEMS RESEARCH LABORATORY, INC., DAYTON, OH FOR AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY (AFAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO TEST THE EFFECTS OF A FIVE MILLIGRAM (MG) ORAL DOSE OF DIAZEPAM (VALIUM) ON PERFORMANCE AS MEASURED BY THE NEUROLOGICAL WORKLOAD TEST BATTERY (NWTB). AIR FORCE MALES WERE USED IN THE STUDY. THE SUBJECTS WERE PUT THROUGH A SERIES OF TESTS, GIVEN A FIVE MG DOSE OF PLACEBO OR VALIUM, AND REPEATED THE TESTS. THIS PROCEDURE WAS REPEATED 48 HOURS LATER USING THE SECOND DRUG. THE RESULTS SHOWED NO SIGNIFICANT GENERALIZED EFFECT ON MOST OF THE DEPENDENT VARIABLES CONSIDERED. THE MAJORITY OF LITERATURE ON THE SUBJECT INDICATES 10 TO 20 MG OF ORAL VALIUM ARE REQUIRED TO ACHIEVE SIGNIFICANCE IN THE VARIABLES CONSIDERED.

TITLE: DEVELOPMENT OF A COMMUNICATION SYSTEM COMPATIBLE WITH CHEMICAL PROTECTIVE CLOTHING AND EQUIPMENT
DATA SOURCE NO: USCG-D-18-86, ADA170863
AUTHOR: B.D. BLOOD, R.E. RADKE
ORIGINATING ORG: REMIC CORPORATION, ELKHART, IN FOR US COAST GUARD (USCG), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS ARTICLE DESCRIBES THE DEVELOPMENT OF A COMMUNICATION SYSTEM TO BE USED WITH THE US COAST GUARD'S HAZARDOUS CHEMICAL PROTECTION ENSEMBLE (HCPE). THE REPORT PRESENTS THE REQUIREMENTS OF THE SYSTEM, A DESCRIPTION OF THE TEST MODELS, A DESCRIPTION OF THE PROTOTYPE MODEL, AND THE RESULTS OF THE FIELD TESTINGS OF THE PROTOTYPE. THE ARTICLE CONCLUDES WITH RECOMMENDATIONS FOR FUTURE USE OF THIS SYSTEM. THE FIELD EVALUATION TEST RESULTS AND THE SUGGESTIONS FOR IMPROVEMENT LIST MANY OF THE PROBLEMS AND SOLUTIONS TO INSURE ADEQUATE COMMUNICATIONS WHILE WEARING PROTECTIVE CLOTHING.

TITLE: HUMAN EXERCISE AND HEAT EXCHANGE IN THERMAL ENVIRONMENTS
DATA SOURCE NO: USARIEM-M-35/86, ADA168746
AUTHOR: M.N. SAWKA, A.J. YOUNG, C.B. WENGER, K.B. PANDOLF
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS DOCUMENT BRIEFLY REVIEWS THE CURRENT AND EMERGING APPLIED PHYSIOLOGY ISSUES, CONCERNING HUMAN EXERCISE AND HEAT EXCHANGE IN BOTH HOT AND COLD ENVIRONMENTS. ISSUES INCLUDE THE CAPACITY OF HUMANS TO THERMOREGULATE, INDIVIDUAL ACCLIMATION STATE, AEROBIC FITNESS, AND THE TYPE OF PHYSICAL EXERCISE PERFORMED. FOR COLD ENVIRONMENTS, ISSUES INVESTIGATED INCLUDED HUMAN COLD ACCLIMATION, AND THE INFLUENCE OF BODY FAT AND EXERCISE TYPE ON THE RESISTANCE TO HYPOTHERMIA DURING COLD WEATHER EXPOSURE.

TITLE: DAVIRT MODEL PARAMETER STUDY/LITERATURE SURVEY
DATA SOURCE NO: CRDEC-CR-87008
AUTHOR: C.A. NORMAN, J.E. BRUNO, R.E. MCNALLY
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORP., MCLEAN, VA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/10/01

COMMENTS: THE DAVIRT (DROPLET AND VAPOR INTERACTIONS WITH ROUGH TERRAIN) MODEL IS ESSENTIALLY AN EXTENSION OF THE NUSSE (NON-UNIFORM SIMPLE SURFACE EVAPORATION) AGENT DISSEMINATION METHODOLOGY TO INCLUDE TREATMENT OF URBAN AND WOODED TERRAIN INFLUENCES. THIS REPORT EXAMINES THE RESULTS OF CHEMICAL FIELD TESTS FOR POTENTIAL INCLUSION IN A DAVIRT VALIDATION DATA BASE. A MODEL PARAMETERIZATION STUDY WAS PERFORMED AND RESULTS ARE PRESENTED.

TITLE: RIFLE FIRING PERFORMANCE WITH THREE PROTOTYPE XM40 PROTECTIVE MASKS
DATA SOURCE NO: HEL-TM-5-86
AUTHOR: R.P. MERKEY, D.M. HARRAH
ORIGINATING ORG: HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/07/01

COMMENTS: PRESENTS AND DISCUSSES RESULTS OF STUDY CONDUCTED TO EVALUATE THREE PROTOTYPE XM40 PROTECTIVE MASKS AND THEIR EFFECTS ON

RIFLE FIRING. THE TEN SUBJECTS - SEVEN US ARMY SOLDIERS AND THREE CIVILIANS - FIRED FROM SUPPORTED FOXHOLE POSITIONS AT A SERIES OF 10 RANDOMLY PRESENTED TARGETS. TEN CONDITIONS WERE STUDIED: NO MASK, NO MASK WITH COMBAT SPECTACLES, XM40-1, XM40-1 WITH COMBAT SPECTACLES, XM40-2, XM40-2 WITH COMBAT SPECTACLES, XM40-3, XM40-3 WITH COMBAT SPECTACLES, M17A1, AND M17A1 WITH INSERTS. DATA PRESENTED INCLUDE REACTION TIME, PERCENT HITS, AND QUESTIONNAIRE RESPONSES. DATA INDICATED A SLIGHT EDGE IN FAVOR OF THE XM40-1, WITH BOTH THE XM40-2 AND XM40-3 CLOSE SECONDS. ALL THREE OFFER IMPROVED PERFORMANCE OVER THE M17A1.

TITLE: EFFECTS OF CHEMICAL DEFENSE ANTIDOTES (ATROPINE) ON AVIATOR PERFORMANCE (SIMULATED FLIGHT AND ZERO INPUT TRACKING ANALYZER)
AUTHOR: L.W. STONE, R.R. SIMMONS, H.D. JONES, D.J. CARTER, R.S. CHRISTIANSEN
ORIGINATING ORG: US ARMY AEROMEDICAL RESEARCH LABORATORY, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS PAPER BRIEFLY OUTLINES PART OF THE FIRST PHASE FOR USING SIMULATED FLIGHT AND THE ZERO INPUT TRACKING ANALYZER (ZITA) TO IDENTIFY AND MEASURE FLIGHT PERFORMANCE AND PSYCHOMOTOR EFFECTS OF ATROPINE ON AVIATORS. TWELVE ARMY AVIATORS RECEIVED DOSES OF ZERO, TWO AND OUR MILLIGRAMS (MG) OF ATROPINE SULFATE. RESULTS WERE: RATED BY INSTRUCTOR PILOTS, AND MEASURED BY THE ZITA. THE FOUR MG OF ATROPINE SIGNIFICANTLY FFECTED PERFORMANCE AND THE TWO MG MILDLY AFFECTED PERFORMANCE. THE NEXT PHASE WILL INVESTIGATE THE EFFECTS OF ATROPINE ON INFLIGHT PERFORMANCE.

TITLE: EVALUATION OF IMPERMEABLE PROTECTIVE GARMENTS USING HEAT TRANSFER MODELS
AUTHOR: Y.G. KWON, J.D. RAMSEY
ORIGINATING ORG: TEXAS TECH UNIVERSITY, LUBBOCK, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS ARTICLE PRESENTS A COMPARISON STUDY OF THREE HEAT TRANSFER MODELS. THESE THREE METHODS ARE: GAGGE/NISHI MODEL; GOLDMAN MODEL; AND INTERNATIONAL STANDARDS ORGANIZATION (ISO) MODEL. A COMPUTER SIMULATION WAS DEVELOPED TO ASCERTAIN THE DIFFERENCE BETWEEN THE METHODS. EQUATIONS FOR EACH OF THE HEAT TRANSFER MODELS ARE PROVIDED. TABLES FOR A COMPARISON OF THE THREE MODELS FOR HEAT STORAGE, EVAPORATION AND AIR TEMPERATURE FOR REGULAR CLOTHING AND IMPERMEABLE CLOTHING ARE PRESENTED.

TITLE: THE CHEMICAL WAR: IRAN REVISITED - 1986
AUTHOR: P. DUNN
ORIGINATING OR. DEFENSE INTELLIGENCE AGENCY (DIA), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: DOCUMENT DESCRIBES SOME DETAILS OF THE SECOND UNITED NATIONS MISSION TO IRAN AS SEEN BY THE AUTHOR. MISSION MEMBERS WERE ABLE TO EXAMINE CASUALTIES FROM MUSTARD ATTACKS DURING THE PREVIOUS 1 TO 12 DAYS. TEAM MEMBERS USED THE BRITISH CHEMICAL AGENT MONITOR TO DETERMINE THE PRESENCE OF MUSTARD IN CRATERS AND OTHER AREAS. MUSTARD WAS DETECTED EVEN THOUGH THE AREAS HAD BEEN DECONTAMINATED. ONE INCIDENT DESCRIBED THE RESULTS OF A MUSTARD BOMB HITTING 15 METERS FROM A HOSPITAL. THERE WERE CASUALTIES AMONG THE DOCTORS BUT THEIR DEBRIEFING PROVIDED SCIENTIFIC DESCRIPTIONS OF THEIR CONDITION, THE EXTENT OF THEIR INJURIES, AND THEIR PROGNOSIS FOR RECOVERY.

TITLE: CATALOG OF WARGAMING AND MILITARY SIMULATION MODELS
DATA SOURCE NO: JADAM-270-86, ADA169472
AUTHOR: J.A. GUIRRERI
ORIGINATING ORG: JOINT CHIEFS OF STAFF, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: LISTS THE DESCRIPTIONS OF OVER 600 SIMULATIONS, WAR GAMES, EXERCISES AND MODELS IN GENERAL USE THROUGHOUT THE DEPARTMENT OF DEFENSE AND IN DEFENSE ESTABLISHMENTS OF AUSTRALIA, CANADA, ENGLAND AND GERMANY. ENTRIES ARE LISTED ALPHABETICALLY BY ACRONYM AND LONG TITLE. THE DESCRIPTION OF EACH MODEL INCLUDES PROPONENT, DEVELOPER, PURPOSE, GENERAL DESCRIPTION, INPUT, OUTPUT, LIMITATIONS, HARDWARE, SOFTWARE, TIME REQUIREMENTS, SECURITY CLASSIFICATION (OF THE MODEL LESS DATA), FREQUENCY OF USE, AND POINT OF CONTACT FOR ADDITIONAL INFORMATION. THE CATALOG DRAWS UPON INPUTS FROM ANALYSIS AGENCIES IN THE VARIOUS DEFENSE ESTABLISHMENTS, INDEPENDENT CONTRACTORS AND RESEARCH ORGANIZATIONS, AND SIMILAR CATALOGS OF GAMES AND SIMULATIONS. DATE REVISED IS 1986. THIS PUBLICATION, THE 10TH EDITION, SUPERCEDES PREVIOUS EDITIONS.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION (SALTY DEMO) VOLUME X: NUCLEAR, BIOLOGICAL, AND CHEMICAL DEFENSE
DATA SOURCE NO: YQ-DR-86-1
ORIGINATING ORG: ABS SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: SALTY DEMO WAS A DEMONSTRATION OF AIR BASE

SURVIVABILITY AT SPANGDAHLEM AIR BASE, GERMANY 29 APRIL - 17 MAY 1985. THE VOLUME DISCUSSES CHEMICAL DEFENSE ASPECTS OF THE EXERCISE INCLUDING THE SURVIVABLE COLLECTIVE PROTECTION SYSTEM (SCPS-2); CHEMICAL AGENT SENSORS; AUTOMATIC LIQUID AGENT DETECTOR, INDIVIDUAL CHEMICAL AGENT DETECTOR, SURFACE CONTAMINATION MONITOR, AUTOMATIC CHEMICAL AGENT DETECTOR, CHEMICAL AGENT MONITOR, PERSONNEL CONTAMINATION SENSOR, SPURPANZER NBC RECONNAISSANCE VEHICLE; APPLICATION OF ATTRITION AND BUDDY CARE; THE IMPERMEABLE ENSEMBLE SYSTEM (IMPSYS); AND DECONTAMINATION. MEASURED PERFORMANCE OF EQUIPMENT AND SYSTEMS IS DISCUSSED IN TERMS OF OPERATIONAL CONCEPTS AND POSTULATED CONTRIBUTION TO SORTIE GENERATION.

TITLE: FOOD/DRINK/SPEECH SYSTEMS FOR RESPIRATORY PROTECTION
DATA SOURCE NO: CRDEC-CR-86070
AUTHOR: J.F. MANK, C.V. RODMAN, D.R. FOLSOM, P.A. CROWLEY, R.K. SMITH
ORIGINATING ORG: BATTELLE-COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS DOCUMENT DISCUSSED IMPROVING THE CAPABILITIES OF INDIVIDUAL PROTECTIVE EQUIPMENT (IPE) SO IT CAN BE WORN UP TO 70 HOURS. THEY DISCUSSED IMPROVING THE VOICEMITTER AND DRINKING SYSTEM PRESENTLY BEING USED AND ADDING ON A SYSTEM TO ENABLE EATING. THE FOLLOWING DECISIONS WERE MADE: 1) IMPROVE THE EXISTING VOICEMITTER TO MAKE IT MORE EFFICIENT, 2)IMPROVE THE DRINKING SYSTEM BY MAKING THE INLET TUBE CHECK VALVE LONGER, A SQUEEZABLE CANTEEN, AND A LONGER DRINKING TUBE, AND 3) ADD A SOLID FOOD INTAKE SYSTEM.

TITLE: FIELD DEVELOPMENTAL TEST OF THE DUAL BARREL AUTOMATIC INJECTOR, MARK II
DATA SOURCE NO: MAMC-86-1, ADA169728
AUTHOR: K.E. FRIEDL
ORIGINATING ORG: MADIGAN ARMY MEDICAL CENTER (MAMC), TACOMA, WA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: TESTS WERE CONDUCTED TO DETERMINE THE RELIABILITY OF THE MARK II DUAL BARREL AUTOMATIC INJECTOR IN THE HANDS OF SOLDIERS IN A FIELD ENVIRONMENT. THE MARK II IS A NOSE-ACTIVATED AUTOMATIC INJECTOR SYSTEM WHICH DELIVERS 2-PAM-CL (PRALIDOXIME CHLORIDE) AND ATROPINE FROM SEPARATE BARRELS THROUGH TWO SEPARATE NEEDLES WITH A SINGLE ACTION BY THE USER. EACH SOLDIER CARRIED THREE INJECTORS IN A SMALL ARMS AMMUNITION POUCH ON THEIR LOAD BEARING SUSPENDERS FOR 18 TO 21 DAYS OF FIELD

TRAINING IN HOT DRY CONDITIONS. OF 1525 INJECTORS TESTED, THREE PERCENT HAD A MALFUNCTION WHICH RELEASED THE ATROPINE BARREL FROM THE SAFETY MECHANISM. TESTING ALSO REVEALED DEFECTS WHICH WERE NOT SPECIFICALLY FIELD EXPOSURE RELATED INCLUDING, DEFICIENT ATROPINE BARREL VOLUMES (3.7 PERCENT) EXCESSIVE ACTIVATION FORCES (5.9 PERCENT) AND LOOSE SAFETY PINS (11.0 PERCENT).

TITLE: THERMAL RESPONSES OF TANK CREWMEN OPERATING WITH MICROCLIMATE COOLING UNDER SIMULATED NBC CONDITIONS IN THE DESERT AND TROPICS
DATA SOURCE NO: USARIEM-T7/86, ADA169269
AUTHOR: B.S. CADARETTE, N.A. PIMENTAL, C.A. LEVELL, J.E. BOGART, M.N. SAWKA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/02/01

COMMENTS: THIS REPORT EVALUATES THE THERMAL RESPONSES OF M1E1 TANK CREWMEN WEARING A AIR-COOLED SYSTEM, VEST AND VENTILATED FACE PIECE.CREWMEN PERFORMED CONTINUOUS OPERATIONS FOR UP TO 12 HOURS IN MISSION-ORIENTED PROTECTIVE POSTURE (MOPP) LEVEL 4 IN BOTH DESERT AND TROPIC ENVIRONMENTS. THE TESTS SHOWED ONLY A 0.1 DEGREES CELSIUS INCREASE IN THE MEAN CORE TEMPERATURE OF THE CREW FOR THE DESERT ENVIRONMENT, AND RELATIVELY NO INCREASE IN MEAN CORE TEMPERATURE IN THE TROPIC ENVIRONMENT. THE RESULTS INDICATE THE AIR-COOLED SYSTEM INCREASES THE CAPABILITIES OF TANK CREWMEN OPERATING IN MOPP LEVEL 4.

TITLE: EFFECTS OF CHEMICAL PROTECTIVE HANDWEAR AND HEADGEAR ON MANUAL DEXTERITY
AUTHOR: R.F. JOHNSON, L.A. SLEEPER
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/10/01

COMMENTS: A THREE-WAY ANALYSIS OF VARIANCE (HANDWEAR AND HEADGEAR AND DAYS) WAS CONDUCTED ON THE SUBJECTS' PERFORMANCE ON TWO MANUAL DEXTERITY TASKS (O'CONNER TEST AND PRUDUE PEG BOARD). FOUR TESTS WERE EVALUATED: BARE HEAD AND BARE HAND; BARE HANDS AND MASK; GLOVES AND BARE HEAD; GLOVES AND MASK. THE RESULTS WERE MISSION ORIENTED PROTECTIVE POSTURE LEVEL IV (MOPP IV) LEADS TO ONE-HANDED AND TWO-HANDED DEXTERITY LOSS WHEN WEARING THE GLOVE BOTH IN THE MASKED AND UNMASKED CONDITIONS. THE MASK HAD NO MEASURABLE EFFECT. ALSO IT TAKES LONGER TO BE PROFICIENT AT ANY TASK WHEN WEARING THE MASK. TRAINING WHILE WEARING THE GEAR SHOULD

BE MORE INTENSIVE AND JOB-SPECIFIC ESPECIALLY FOR TASKS THAT REQUIRE MANUAL DEXTERITY.

TITLE: EVALUATION OF INDIVIDUAL PROTECTIVE EQUIPMENT IMPROVEMENT OBJECTIVES
DATA SOURCE NO: AAMRL-TR-87-002
AUTHOR: V.E. MIDDLETON, J.R CHEVALIER, J.B. EVANS, J.E. FELT, T.R. HAYES, R.T. MCINTYRE, C.D. PORTER, M.E. RAYLE, R.V. RUDOFSKI, D.S. SHELEF, R.L. SHEW, G.M. JAMES ADC040557
ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/03/01

COMMENTS: THIS REPORT EVALUATES THE POTENTIAL FOR IMPROVED AIR BASE SORTIE GENERATION RATES IN A CHEMICAL WARFARE ENVIRONMENT AS A RESULT OF IMPROVEMENTS TO GROUND CREW INDIVIDUAL PROTECTIVE EQUIPMENT (IPE). AIR BASE OPERATIONS AT A CENTRAL EUROPEAN MAIN OPERATING BASE ARE ANALYSED USING THE CHEMICAL DEFENSE SIMULATION SYSTEM (CDSS), A SUITE OF COMPUTER MODELS WHICH INCLUDES NUSSE II, TSARINA, TSARDOSE, AND CWTSAR. SORTIE GENERATION RATES, CONVENTIONAL, AND CHEMICAL CASUALTIES ARE THE PRINCIPAL MEASURES OF MERIT. IPE COMPONENT IMPROVEMENT RANKINGS, A DESCRIPTION OF THE CDSS, AND THE CDSS SENSITIVITY TO PARAMETRIC VARIATIONS IN KEY INPUT PARAMETERS ARE PROVIDED. ALSO PROVIDED ARE APPENDICES WITH IPE-INDUCED TASK TIME DEGRADATION FACTORS.

TITLE: CHEMICAL WARFARE IN URBAN AREAS: OPPORTUNITIES AND PROBLEMS
DATA SOURCE NO: CRDEC-TR-86070, ADC040245
AUTHOR: A. BIRENZVIGE, G. SCHECTER
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOWNGRADING DATE: 01/07/01
DOCUMENT DATE: 86/07/01

COMMENTS: THIS DOCUMENT COMPARES A CONVENTIONAL SCENARIO FOR A BATTLE IN AN URBAN AREA TO A CHEMICAL SCENARIO FOR THE SAME AREA. ADVANTAGES AND DISADVANTAGES TO BOTH SIDES ARE DISCUSSED. THE DOCUMENT CONCLUDES THAT, IN A EUROPEAN SCENARIO, THE MORE EFFICIENT WAY TO OCCUPY URBAN AREAS IS TO USE CHEMICAL AGENTS RATHER THAN CONVENTIONAL WEAPONS. IT RECOMMENDS NATO: TRAIN THEIR TROOPS TO FIND "SAFE HAVENS" IN SELECTED BUILDINGS; DEVELOP MEANS TO SEAL ROOMS, INCLUDING DEVELOPMENT OF A SMALL BLOWER FILTER FOR OVER-PRESSURE CAPABILITY; AND IMPLEMENT SPECIAL TRAINING TO ENABLE TROOPS TO COPE WITH A CHEMICAL ENVIRONMENT IN AN URBAN AREA.

TITLE: CHEMICAL WARFARE CHALLENGE TO AIRCREWS: VOLUME II--APPENDICES
DATA SOURCE NO: AAMRL-TR-86-055, ADC040554
AUTHOR: J.G. JENSEN, J.V. HANY, D.E. VANDERVEER, G.M. JAMES
ORIGINATING ORG: JAYCOR, DAYTON, OH FOR ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/06/01

COMMENTS: REPORT ON A STUDY TO DETERMINE EXPECTED CHEMICAL AGENT CHALLENGE LEVELS ENCOUNTERED BY PILOTS PERFORMING TACTICAL AIR COMMAND (TAC), MILITARY AIRLIFT COMMAND (MAC), AND STRATEGIC AIR COMMAND (SAC) MISSIONS. EIGHTEEN DIFFERENT MISSIONS WERE EXAMINED INVOLVING 13 DIFFERENT AIRCRAFT TYPES DURING A SIMULATED CENTRAL EUROPEAN CONFLICT. STUDY QUANTIFIED VAPOR CHALLENGE TO AIRCREWS AND AIRCRAFT, AND EXAMINED INTERACTION OF CHEMICAL AGENTS WITH THE AIRCRAFT'S ENVIRONMENTAL CONTROL SYSTEM AND HAZARD LEVELS PRODUCED BY CONTAMINATED CARGO. THIS VOLUME CONTAINS A THREAT SUMMARY, DETAILED CHALLENGE TABLES FROM THE SIMULATION RUNS, AND PLOTS OF LIQUID AND VAPOR CHALLENGE HISTORIES ENCOUNTERED BY THE AIRCRAFT AND AIRCREW.

TITLE: ASSESSMENT OF CS ENVIRONMENTAL TOXICITY AT EGLIN AFB, FL
DATA SOURCE NO: USAFOEHL-86-058E00058HTB, ADA171685
AUTHOR: W.C. KELLER, R.G. ELVES, J.C. BONN...
ORIGINATING ORG: US AIR FORCE OCCUPATIONAL AND ENVIRONMENTAL HEALTH LABORATORY (USAFOEHL), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/08/01

COMMENTS: DOCUMENT PROVIDES A HAZARD ASSESSMENT AND RECOMMENDATIONS REGARDING THE ENVIRONMENTAL TOXICITY OF CS(O-CHLOROBENZYLIDENE MALONONITRILE) IN SOIL RESULTING FROM EXERCISES AT EGLIN AFB. A SIMPLIFIED MODEL OF THE DEGRADATION OF CS DEPOSITED IN SOIL WAS PRESENTED. DOCUMENT INCLUDES A COMPREHENSIVE INTERPRETIVE REVIEW OF CS LITERATURE. CONCLUSIONS INDICATED THAT LIMITING CS DISPERSION AT A SITE TO 7-DAY INTERVALS WOULD CLEARLY PUCLUDE ENVIRONMENTAL BUILDUP WHILE A 3-DAY INTERVAL COULD LEAD TO MODERATE BUILDUP. A 30-DAY REST FOR A CS DISPERSION AREA SHOULD RESULT IN A GREATER THAN 99 PERCENT DECREASE IN SOIL CS BURDEN.

TITLE: ORGANOPHOSPHATES: GENETICS RECEPTORS AND ANTIDOTES
DATA SOURCE NO: AFOSR-86-0945, ADA173157
AUTHOR: A.C. COLLINS

ORIGINATING ORG: UNIVERSITY OF COLORADO, BOULDER, CO FOR AIR FORCE OFFICE OF SCIENTIFIC RESEARCH (AFOSR), BOLLING AFB, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/08/01

COMMENTS: INBRED MOUSE STRAINS WERE FOUND TO DIFFER IN SENSITIVITY TO A NUMBER OF BEHAVIORAL AND PHYSIOLOGICAL EFFECTS ELICITED BY DIISOPROPYLFLOUROPHOSPHATE (DFP) AS WELL AS IN LETHALITY. THESE DIFFERENCES WERE NOT EASILY EXPLAINED IN TERMS OF DIFFERENTIAL INHIBITORS OF ACETYLCHOLINESTERASE. NICOTINE-INDUCED SEIZURES WERE STUDIED AS A MODEL SYSTEM FOR ORGANOPSPHATE-INDUCED SEIZURES. CONCLUSIONS INCLUDE: ACUTE AND CHRONIC RESPONSES ARE REGULATED BY GENETIC FACTORS IN THE MOUSE, IMPLYING THAT HUMANS MAY HAVE DIFFERENTIAL SENSITIVITY TO ACUTE AND CHRONIC EFFECTS ELICITED BY ORGANOPHOSPHATES; ACUTE AND CHRONIC EXPOSURE TO DFP MAY RESULT IN NEUROTOXICITY.

TITLE: INFLUENCE OF ATROPINE ON PHYSICAL PERFORMANCE IN THE HEAT
DATA SOURCE NO: USARIEM-T-16-86, ADA173029
AUTHOR: P.I. FITZGERALD, J.J. KNAPIK, W.L. DANIELS, J.A. VOGEL, B.E. JOYCE
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS STUDY EXAMINED THE EFFECTS OF INTRAMUSCULAR INJECTION OF ATROPINE ON STATIC AND DYNAMIC MUSCULAR STRENGTH AND ENDURANCE AS WELL AS PERFORMANCE AND LEARNING ON A GROSS MOTOR TASK AT 40 DEGREES CELSIUS AND 30 PERCENT RELATIVE HUMIDITY. UNDER THE TEST CONDITIONS, DOSAGES OF 0.5 TO 2.0 MILLIGRAMS (MG) OF ATROPINE WHEN MEASURED 3 TO 4 HOURS PAST INJECTION HAD NO SIGNIFICANT INFLUENCE ON MUSCLE STRENGTH, DID NOT APPEAR TO INFLUENCE MUSCULAR ENDURANCE, AND CAUSED DECREMENTS IN PERFORMANCE AND LEARNING ON THE GROSS MOTOR TASK. THERE WAS A TREND TOWARD LOWER ENDURANCE WHEN THE ATROPINE DOSAGE WAS 2.0 MG.

TITLE: COMBAT CASUALTIES IN A CONVENTIONAL AND CHEMICAL WARFARE ENVIRONMENT
DATA SOURCE NO: NAVHLTHRSCHC-86-9, ADA173275
AUTHOR: B.G. MCCAUGHEY, J. GARRICK, J.B. KELLEY
ORIGINATING ORG: NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/02/01

COMMENTS: STATISTICAL SUMMARIES OF NUMBERS AND RATES OF

SOLDIERS WOUNDED, KILLED IN ACTION, OR ADMITTED TO MILITARY TREATMENT FACILITIES DURING WORLD WAR II AND IN THE KOREAN AND VIETNAMESE WARS WERE USED TO PREDICT CASUALTIES AND TO EXAMINE METHODS TO IMPROVE OUR ABILITY TO COPE WITH THESE CASUALTIES. PREDICTIONS SHOW THAT 34 PERCENT OF THE CASUALTIES REQUIRING HOSPITALIZATION WOULD HAVE WOUNDS THAT WOULD CAUSE PROTECTIVE MASK FAILURE. WHEN THIS 34 PERCENT IS ADDED TO THE 2.9 PERCENT THAT DIE DUE TO CONVENTIONAL WOUNDS IT IS ESTIMATED THAT A TOTAL OF 36.9 PERCENT OF THOSE REQUIRING HOSPITALIZATION WOULD DIE IN A CHEMICAL WARFARE ENVIRONMENT.

TITLE: PHYSIOLOGICAL ASSESSMENTS OF CHEMICAL THREAT PROTECTIVE PATIENT WRAPS IN THREE ENVIRONMENTS
DATA SOURCE NO: USARIEM-M-56-86, ADA173203
AUTHOR: B.S. CADARETTE, K.L. SPECKMAN, L.A. STEPHENSON
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/09/01

COMMENTS: DOCUMENT EVALUATES PHYSIOLOGICAL RESPONSES OF EIGHT SUBJECTS IN THE CURRENT CHEMICAL WARFARE AGENT PROTECTIVE PATIENT WRAP AND COMPARES IT TO SEVEN PROTOTYPES. THE DEPENDENT MEASURES CONSISTED OF RECTAL TEMPERATURES, HEART RATE, SWEATING RATES, AND OXYGEN AND CARBON DIOXIDE CONCENTRATIONS WITHIN THE WRAP. RESULTS SHOW THAT THE CURRENT PATIENT WRAP IS BETTER THAN OR EQUAL TO THE PROTOTYPE WRAPS IN A WARM OR HOT ENVIRONMENT AND ALSO PERFORMS WELL IN A COLD ENVIRONMENT.

TITLE: EXERCISE AFTER ATROPINE AND PRALIDOXIME INCREASES THE RATIONAL EFFECTIVE TEMPERATURE
DATA SOURCE NO: USARIEM-M-46-86, ADA173544
AUTHOR: L.A. STEPHENSON, M.A. KOLKA, R.R. GONZALEZ
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/07/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO DETERMINE THE EFFECT OF ATROPINE (ATR), PRALIDOXIME (2-PAM), AND ATROPINE PLUS PRALIDOXIME (CMD) TREATMENT IN FOUR MEN DURING EXERCISE AT 55 PERCENT PEAK AEROBIC POWER IN A WARM ENVIRONMENT. MEAN SKIN TEMPERATURE, RECTAL TEMPERATURE AND ESOPHAGEL TEMPERATURE WERE MEASURED TWICE EACH MINUTE. EVAPORATIVE HEAT LOSS WAS CALCULATED FROM CHANGES IN BODY WEIGHT. A RATIONAL EFFECTIVE TEMPERATURE WAS DERIVED USING A PSCHROMETRIC FORMAT. THE RESULTS INDICATE CMB TREATMENT FOR ORGANOPHOSPHATE POISONING WILL RESULT IN SIGNIFICANTLY INCREASED THERMO-REGULATORY STRAIN THAN WILL EITHER DRUG ALONE.

TITLE: COOLING DIFFERENT BODY SURFACES DURING UPPER AND LOWER BODY EXERCISE
DATA SOURCE NO: USARIEM-M-54-86, ADA173320
AUTHOR: A.J. YOUNG, M.N. SAWKA, Y. EPSTEIN, B. DECRISTOFANO, K.B. PANDOLF
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/09/01

COMMENTS: TESTS WERE PERFORMED TO SEE IF IT WOULD BE ADVANTAGEOUS TO COOL CERTAIN PARTS OF THE BODY. THE SUBJECTS DID UPPER BODY (ARM CRANK) AND LOWER BODY (TREADMILL RUNNING) EXERCISES FOR THIS EXPERIMENT. A LIQUID MICRO-CLIMATE COOLING SYSTEM WAS USED FOR THE COOLING PROCESS. DURING UPPER BODY EXERCISE IN THE HEAT, THE EXPERIMENT SHOWED NO ADVANTAGE OF COOLING THE UPPER ARMS AND THE TORSO COMPARED TO JUST COOLING THE TORSO. DURING LOWER BODY EXERCISES IN THE HEAT, SMALLER CHANGES IN CORE TEMPERATURE AND LOWER SWEAT RATES OCCURRED WHEN COOLING THE THIGHS ALONG WITH THE TORSO.

TITLE: A COMPUTATIONAL ANALYSIS AND COMPARISON OF SOME SARIN AND SOMAN ANALOGUES
DATA SOURCE NO: ARO-22374-3-CH, ADA164768
AUTHOR: P. POLITZER, K. JAYASURIYA
ORIGINATING ORG: UNIVERSITY OF NEW ORLEANS, NEW ORLEANS, LA FOR US ARMY RESEARCH OFFICE, RESEARCH TRIANGLE PARK, NC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/02/24

COMMENTS: SEVERAL ANALOGUES OF SARIN (GB) AND SOMAN (GD) WERE INVESTIGATED FOR THEIR POSSIBLE ABILITY TO ELICIT EFFECTIVE ANTIBODIES TO THESE ANTI-CHOLINESTERASE AGENTS. THE KEY ISSUE WAS TO DETERMINE WHETHER THE FLOURINES IN SOMAN AND SARIN COULD BE REPLACED BY SOME OTHER FUNCTIONAL GROUP THAT WOULD RESULT IN LOWER TOXICITY SO THAT THE ANTIBODIES WOULD HAVE AN APPORTUNITY TO FORM, BUT THAT MIMICS FLUORINE WELL ENOUGH THAT THESE ANTIBODIES WOULD SHOW SATISFACTORY ANTISARIN AND ANTISOMAN ACTIVITIES. IT WAS CONCLUDED THAT -CN AND -OCH3 GROUPS SHOW THE GREATEST PROMISE AS FLUORINE REPLACEMENT. THE ANALYSIS INVOLVED A COMPARISON OF CALCULATED ELECTROSTATIC POTENTIALS OF FIVE MOLECULES: ONE SERVES AS A SARIN/SOMAN MODEL WHILE IN OTHERS THE -F GROUP WAS REPLACED BY ONE OF THE FOLLOWING GROUPS: -CN, -OH, -OCH3 OR -NH2.

TITLE: ANALYTICAL METHODOLOGY TESTING TASK 4--EFFECTS OF CHEMICAL AGENTS ON AIRCRAFT MATERIALS
DATA SCOURCE NO: CRDEC-CR-86025, ADC039519

AUTHOR: R.L. DUNN, T.E. LAWLER, C.D. KWONG, H.H. HILL, R.B. SPAFFORD
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT DEALS WITH THE COMPATIBILITY OF MATERIALS COMMONLY USED BY THE AEROSPACE INDUSTRY WITH HD AND TGD. THE MATERIAL CLASSES TESTED INCLUDED PLASTICS, ELASTOMERS, AND ADHESIVES/SEALANTS. THE TENSILE PROPERTIES THAT WERE USED TO EVALUATE THESE MATERIALS INCLUDED TENSILE STRENGTH, PERCENT ELONGATION, MODULUS OF ELASTICITY,A AND TOUGHNESS. VISUAL OBSERVATIONS WERE ALSO MADE DURING THE EVALUATION OF EACH SPECIMEN; AN A SAMPLE SOFTENING, SWELLING, OR DISCOLORATION WAS NOTED. OTHER TESTS INCLUDED HARDNESS, LIGHT TRANSMITTANCE/HAZE, STRESS CRAZING, WEDGE TEST, PEEL TEST, INSULATION, AND PERMEATION.

TITLE: DECONTAMINATION/CONTAMINATION CONTROL MASTER PLAN USERS' MEETING, 11-13 SEPTEMBER 1985
DATA SOURCE NO: CRDEC-CR-87029
ORIGINATING ORG: BATTELLE-COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/11/01

COMMENTS: REPORT PRESENTS A BRIEF DESCRIPTION OF THE ACTIVITIES OF THE DECONTAMINATION/CONTAMINATION CONTROL MASTER PLAN USERS' MEETING HELD ON 11-13 SEPTEMBER 1985. THE DATA IN THIS REPORT IS INCLUDED IN THE FINAL MASTER PLAN DOCUMENT. CONTAINS A LISTING OF BOTH MINIMAL ACCEPTABLE/REQUIRED CHARACTERISTICS AND THE OPTIMAL/DESIRED CHARACTERISTICS OF DECONTAMINATION SYSTEMS AND DECONTAMINANTS. DISCUSSED IN GENERAL TERMS THE FRIENDLY ACTIVITIES/DECISIONS TO BE MADE BEFORE, DURING, AND AFTER THE FOLLOWING EVENTS: A DIRECT ATTACK, DOWNWIND DRIFT OF A CHEMICAL CLOUD, AND AN ENCOUNTER WITH A CONTAMINATED AREA. UNITS COVERED INCLUDE SELF-PROPELLED BATTERY, MECHANIZED CAVALRY TROOP, DIVISION BUDGE, DIVISION COMMAND POST, DIVISION MILITARY POLICE, FORWARD AREA REARURING AND REFUELING POINT, AND NUCLEAR DEPLOYMENT SUPPORT.

TITLE: AMBIENT-TEMPERATURE EVAPORATION
DATA SOURCE NO: CRDEC-CR-87003
AUTHOR: D.P. SEGERS, R.B. SPAFFORD
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR

CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS REPORT DESCRIBES THE DEVELOPMENT AND TESTING OF AN AMBIENT-AIR DECONTAMINATION TEST METHOD FOR DETERMINING THE EVAPORATION RATE OF CHEMICAL WARFARE (CW) AGENTS FROM THE SURFACE OF AIRCRAFT MATERIAL. THE EVAPORATION RATE VARIED DIRECTLY WITH EXPOSURE TIME AND AIR VELOCITY. THE NERVE AGENT VX WAS THE MOST PERSISTENT. MUSTARD (HD) AND SOMAN (GD) WERE THE LEAST PERSISTENT. PERSISTENCY OF THICKENED VERSIONS OF MUSTARD (THD) AND SOMAN (TGD) FELL BETWEEN THE EXTREMES. TEST RESULTS WERE GENERALLY CONSISTENT WITH THE VISCOSITY AND VOLATILITY OF THE AGENTS. THE AMBIENT-AIR DECONTAMINATION TEST METHOD APPEARED TO BE A RELIABLE METHOD FOR DETERMINING THE RELATIVE EFFECTIVENESS OF THE DECONTAMINATION OF SURFACES USING HIGH VELOCITY AIR AT AMBIENT TEMPERATURES.

TITLE: SOUTHERN RESEARCH EVALUATION OF WORN CHEMICAL-PROTECTIVE GARMENTS WITH CHEMICAL SURETY MATERIAL, VOLUME I: MAIN TEST
DATA SOURCE NO: CRDEC-CR-86032, ADB102888
AUTHOR: M.D. HOWARD, R.B. SPAFFORD
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS DOCUMENT IS THE FIRST VOLUME OF SIX VOLUME REPORT PRESENTING RESULTS OF LABORATORY TESTS OF NERVE AGENT SOMAN (GD) VAPOR-PENETRATION OF 221 SAMPLES FROM CHEMICAL-PROTECTIVE GARMENTS WORN IN THE FIELD. WEAR TIMES RANGED FROM 7 TO 30 DAYS. TESTS WERE PERFORMED BY PLACING DROPS OF NEAT OR THICKENED SOMAN (GD) ON THE SURFACE OF THE SAMPLES AND MEASURING THE TOTAL QUANTITY OF AGENT TO PERMEATE THE SAMPLE (I.E. THROUGH TO THE SKIN SIDE) AND THE AMOUNT OF TIME BEFORE THE PERMEATION BREAKTHROUGH LEVEL (I.E., 10 MICRO-GRAMS PER SQUARE CENTIMETER, OR 100 MILLIGRAMS PER SQUARE METER) WAS REACHED IF AT ALL. THE QUANTITY OF AGENT TO EVAPORATE OFF THE SURFACE WAS ALSO REPORTED. CONTAMINATION DENSITIES USED WERE APPROXIMATELY EQUAL TO 0.5, 1.0, 5.0 AND 10.0 GRAMS PER SQUARE METER. THIS VOLUME PROVIDES SUMMARIES OF THE DETAILED DATA INCLUDED IN VOLUMES II THROUGH VI. NO STATISTICAL SUMMARIES ARE INCLUDED.

TITLE: EVALUATION AND TESTING OF TOTALLY ENCAPSULATING CHEMICAL PROTECTIVE SUITS
DATA SOURCE NO: UCRL--94541, DE86011635

AUTHOR: J.S. JOHNSON
ORIGINATING ORG: LAWRENCE LIVERMORE NATIONAL LABORATORY, LIVERMORE, CA FOR DEPARTMENT OF ENERGY (DOE), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT EVALUATES AND DESCRIBES THE TEST PROCEDURES DEVELOPED TO TEST THE LEAKAGE OF THE TWO TYPES OF TOTAL ENCAPSULATING CHEMICAL PROTECTIVE SUITS (TECP SUITS). TWO NATIONAL CONSENSUS STANDARDS ARE APPLIED TO THE EXTERIOR TECP SUIT COMPONENTS TO EVALUATE THEIR RESISTANCE OR REACTIVITY TO HAZARDOUS CHEMICALS. THESE TWO METHODS, DEVELOPED BY AMERICAN SOCIETY FOR TESTING AND MATERIALS' (ASTM) F-23 COMMITTEE, ARE ASTM METHOD F739-81 "METHOD FOR PERMEATION RESISTANCE" AND ASTM F930-85 "METHOD FOR CHEMICAL PENETRATION".

TITLE: PREDICTING THE EFFECTIVENESS OF CHEMICAL-PROTECTIVE CLOTHING: MODEL AND TEST METHOD DEVELOPMENT
DATA SOURCE NO: EPA/600/2-86/055 PB86209087
AUTHOR: A.S. BHOWN, E.F. PHILPOT, D.P. SEGERS, G.D. SIDES, R.B. SPAFFORD
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR ENVIRONMENTAL PROTECTION AGENCY (EPA) CINCINNATI, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS WORK WAS UNDERTAKEN TO DEVELOP IMPROVED METHODOLOGIES FOR ASSESSING THE EFFECTIVENESS OF CHEMICAL PROTECTIVE CLOTHING FOR PREVENTING HARMFUL EXPOSURES TO NEW CHEMICAL SUBSTANCES. THE FIRST PHASE REQUIRED DEVELOPMENT OF PREDICTIVE MODELS APPLICABLE TO THE EVALUATION OF THE CHEMICAL RESISTANCE OF PROTECTIVE CLOTHING EXPOSED TO LIQUID ORGANIC CHEMICALS. THE SECOND PHASE REQUIRED DEVELOPMENT OF PREDICTIVE TEST METHODS THAT WILL ALLOW THE ESTIMATION OF THE PERMEATION OF CHEMICAL-PROTECTIVE CLOTHING UNDER EXPECTED EXPOSURE CONDITIONS. THE DEVELOPMENT OF THE ALGORITHMS IS DISCUSSED AND IS QUANTITATIVE IN NATURE RATHER THAN QUALITATIVE. APPENDIX A CONTAINS A LISTING OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD TEST METHODS FOR MECHANICAL-PROPERTIES TESTING AND CHEMICAL RESISTANCE TESTING.

TITLE: FACTORS LIMITING ENDURANCE OF ARMOR, ARTILLERY, AND INFANTRY UNITS UNDER SIMULATED NBC CONDITIONS
DATA SOURCE NO: USARIEM-M-18/86, ADA165865
AUTHOR: I. MUNRO, T.M. RAUCH, W.J. THARION, L.E. BANDERET, A.R. LUSSIER, B. SHUKITT
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED

DOCUMENT DATE: 86/03/13

COMMENTS: THIS PAPER IS A SUMMARY OF SIX REPORTS PREPARED TO DETERMINE THE EFFECTS OF 72-HOUR OPERATIONS IN ENVIRONMENTS CONTAMINATED WITH NUCLEAR/BIOLOGICAL/CHEMICAL (NBC) AGENTS. A TOTAL OF 175 SOLDIERS WERE OBSERVED DURING FOUR TESTS DIFFERING IN DESIGN, SITE, CLIMATIC CONDITIONS, AND PERFORMANCE DEMANDS. THE FINDINGS SHOWED THAT PERCEIVED INTENSITY OF SYMPTOMS RESEMBLING THE HYPERVENTILATION SYNDROME WAS SIGNIFICANTLY GREATER IN SOLDIERS CLASSIFIED AS CASUALTIES. SYMPTOM INTENSITY WAS ATTRIBUTED TO TWO BASIC FACTORS: EXTERNAL CONDITIONS AND INDIVIDUAL DIFFERENCES.

TITLE: COMPARISON OF 2-PAM AND PRO-2-PAM CONTAINING TREATMENT REGIMENS AS ANTAGONISTS OF NERVE AGENT-INDUCED LETHALITY AND INCAPACITATION
DATA SOURCE NO: USAMRICD-SP-86-012, ADA173018
AUTHOR: B.G. TALBOT, L.W. HARRIS, W.J. LENNOX, D.A. ANDERSON, M.D. GREEN, B.J. HACKLEY
ORIGINATING ORG: US ARMY MEDICAL RESEARCH INSTITUTE OF CHEMICAL DEFENSE (USAMRICD), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS REPORT CONTAINS RESULTS FROM LABORATORY TESTS USING TWO THERAPEUTIC DROPS, 2-PAM AND ITS DERIVATIVE PRO-2-PAM, ON RATS CHALLENGED WITH NERVE AGENTS. TESTS OBJECTIVES WERE TO DETERMINE THE RELATIVE EFFECTIVENESS OF THE TWO DROPS IN PROVIDING PROTECTION AGAINST NERVE AGENT INDUCED LETHALITY AND IN PROMOTING RECOVERY FROM INCAPACITATION. AGENT SARIN (GB), PRO-2-PAM TOGETHER WITH ATROPINE AND MECAMYLAMINE WERE MORE EFFECTIVE THAN THE CORRESPONDING COMBINATION CONTAINING 2-PAM. AGAINST SOMAN (GD), NEITHER WAS EFFECTIVE. AGAINST VX, BOTH WERE EQUALLY EFFECTIVE.

TITLE: CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT - TREATMENT APPROACHES, NERVE AGENTS, VOLUME VI OF VII VOLUMES
DATA SOURCE NO: HSD-TR-87-007, ADB112919
AUTHOR: W.S. AUGERSON, A. SIVAK, W.S. MARLEY
ORIGINATING ORG: ARTHUR D. LITTLE, INC., CAMBRIDGE, MA FOR HUMAN SYSTEMS DIVISION (HSD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS IS VOLUME SIX OF A REPORT ON CHEMICAL CASUALTY TREATMENT PROTOCOLS. VOLUME ONE IS THE OVERVIEW WHILE THE OTHERS ARE DEDICATED TO SPECIFIC AGENTS OR AGENT TYPES. VOLUME SIX IS DEDICATED TO NERVE AGENTS, IN PARTICULAR TABUN (GA), SARIN (GB), SOMAN (GD), AND VX

(ETHYL-S-DIISOPROPYLAMINOETHYL METHYLTHIOPHOSPHONATE). THIS VOLUME CONTAINS INFORMATION ON PHYSICAL PROPERTIES, DETECTION, DECONTAMINATION, TOXICOLOGY, DIAGNOSTIC CRITERIA, TRIAGE, PRETREATMENT, TABLES OF DOSE RESPONSE AND TIME TO RESPONSE (REFERENCED TO SOURCE). (SEE ALSO VOLUME I, ADB112914; VOLUME II, ADB112915; VOLUME III, ADB112916; VOLUME IV, ADB112917; VOLUME V, ADB112918)

TITLE: CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT - TREATMENT APPROACHES, TRICHOTHECENE MYCOTOXINS, VOLUME V OF VII VOLUMES
DATA SOURCE NO: HSD-TR-87-007, ADB112918
AUTHOR: W.S. AUGERSON, A. SIVAK, W.S. MARLEY
ORIGINATING ORG: ARTHUR D. LITTLE INC., CAMBRIDGE, MA FOR HUMAN SYSTEMS DIVISION (HSD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS IS VOLUME FIVE OF A REPORT ON CHEMICAL CASUALTY TREATMENT PROTOCOLS. VOLUME ONE PROVIDES THE OVERVIEW, WHILE THE OTHERS ARE DEVOTED TO SPECIFIC AGENTS OR AGENT TYPES. VOLUME FIVE IS DEDICATED TO TRICHOTHECENE MYCOTOXINS AND IN PARTICULAR T-2 (4B,15DIACETXY-8A-3METHYLBUTYRYLOXY-12,13-EPOXYTRICHOT HEC-9-EN-3A-01). THIS VOLUME CONTAINS INFORMATION ON PHYSICAL PROPERTIES, DETECTION, DECONTAMINATION, TOXICOLOGY, DIAGNOSTIC CRITERIA, TRIAGE, PRETREATMENT, A TABLE OF T-2 DOSE RESPONSE VALUES REFERENCED TO SOURCE, AND CLINICAL REPORTS OF EXPOSED CASES (AMONG REFUGEES EXPOSED TO YELLOW RAIN IN LAOS). (SEE ALSO VOLUME I, ADB112914; VOLUME II, ADB112915; VOLUME III,ADB112916; VOLUME IV, ADB112917; VOLUME VII, ADB112919)

TITLE: CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT - TREATMENT APPROACHES, PHOSGENE OXIME, VOLUME IV OF VII VOLUMES
DATA SOURCE NO: HSD-TR-87-007, ADB112917
AUTHOR: W.S. AUGERSON, A. SIVAK, W.S. MARLEY
ORIGINATING ORG: ARTHUR D. LITTLE, INC., CAMBRIDGE, MA FOR HUMAN SYSTEMS DIVISION (HSD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS IS VOLUME IV OF A REPORT ON CHEMICAL CASUALTY TREATMENT PROTOCOL. VOLUME ONE PROVIDES THE OVERVIEW , WHILE THE OTHERS ARE DEVOTED TO SPECIFIC AGENTS OR AGENT TYPES. VOLUME IV IS DEDICATED TO PHOSGENE OXIME (CX),A MEMBER OF THE CLASS OF URTICANTS (NETTLE GASES) CHARACTERIZED BY INTENSE IRRITATION OF THE SKIN IMMEDIATELY AFTER CONTACT AND OTHER EFFECTS RESEMBLING NETTLE STINGS. CX IS A VESICANT AS DISTINGUISHED FROM PHOSGENE (CG) WHICH IS A CHOKING AGENT. LITTLE IS KNOWN OF THE PATHOPHYSIOLOGY AND LESS OF THE THERAPY FOR CX, HENCE MUCH OF THIS REPORT IS HIGHLY SPECULATIVE. IT COVERS PHYSICAL PROPERTIES,

DETECTION, DECONTAMINATION, TOXICOLOGY, DIAGNOSTIC CRITERIA, TRIAGE, TREATMENT, AND A TABLE OF DOSE RESPONSE VALUES, REFERENCED BY SOURCE (BOTH HUMAN AND ANIMAL DATA). (SEE ALSO VOLUME I, ADB112914; VOLUME II, ADB112915; VOLUME III, ADB112916, VOLUME V, ADB112918; VOLUME VII, ADB112919).

TITLE: CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT - TREATMENT APPROACHES, LEWISITE, VOLUME III OF VII VOLUMES
DATA SOURCE NO: HSD-TR-87-007, ADB112916
AUTHOR: W.S. AUGERSON, A. SIVAK, W.S. MARLEY
ORIGINATING ORG: ARTHUR D. LITTLE, INC., CAMBRIDGE, MA FOR HUMAN SYSTEMS DIVISION (HSD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS IS VOLUME THREE OF A REPORT ON CHEMICAL CASUALTY TREATMENT PROTOCOLS. VOLUME ONE PROVIDES THE OVERVIEW, WHILE THE OTHERS ARE DEVOTED TO SPECIFIC AGENTS AND AGENT TYPES. VOLUME THREE IS DEDICATED TO LEWISITE, A PROMPT-ACTING LOCAL AND PULMONARY IRRITANT, A MODERATELY DELAYED ACTION VESICANT AND A SYSTEMIC POISON. IT CONTAINS INFORMATION ON PHYSICAL PROPERTIES, DETECTION, DECONTAMINATION, TOXICOLOGY (MECHANISMS OF ACTION, EXPOSURE AND EFFECTS, TIME TO EFFECTS, SYMPTOMS AND HEALING TIMES), DIAGNOSTIC CRITERIA, CLINICAL PROCEDURES, PROGNOSIS, TRIAGE, TREATMENT, AND A TABLE OF LETHAL AND INCAPACITATING DOSE/RESPONSE VALUES, REFERENCED BY SOURCE (BOTH ANIMAL DATA AND HUMAN ESTIMATES ARE PROVIDED). (SEE ALSO VOLUME I, ADB112914; VOLUME II, ADB112915, VOLUME IV, ADB112917; VOLUME V, ADB112918; VOLUME VII, ADB1129_9).

TITLE: CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT - TREATMENT APPROACHES, MUSTARDS, VOLUME III OF VI VOLUMES
DATA SOURCE NO: HSD-TR-87-007, ADB112915
AUTHOR: W.S. AUGERSON, A. SIVAK, W.S. MARLEY
ORIGINATING ORG: ARTHUR D. LITTLE, INC., CAMBRIDGE, MA FOR HUMAN SYSTEMS DIVISION (HSD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS IS VOLUME TWO OF A REPORT OF CHEMICAL CASUALTY TREATMENT PROTOCOLS. VOLUME ONES PROVIDES THE OVERVIEW, WHILE THE OTHERS RE DEVOTED TO SPECIFIC AGENTS OR AGENT TYPES. VOLUME TWO IS DEDICATED TO MUSTARD (YPERITE, HD) AND CONTAINS INFORMATION ON PHYSICAL PROPERTIES, DETECTION, DECONTAMINATION, TOXICOLOGY (MECHANISMS OF ACTION, EXPOSURE AND EFFECTS - DOES/RESPONSE, TIME TO EFFECTS, SYMPTOMS, AND HEALING TIMES), DIAGNOSTIC CRITERIA, CLINICAL PROCEDURES, PROGNOSIS, TRIAGE, TREATMENT, CARE CONSIDERATIONS FOR SYNERGISMS WITH CONVENTIONAL

WOUNDS, AND A TABLE OF LETHAL AND INCAPACITATING DOSE VALUES, REFERENCED BY SOURCE (BOTH ANIMAL DATA AND HUMAN ESTIMATES ARE PROVIDED). (SEE ALSO VOLUME I, ADB112914; VOLUME III, ADB112916; VOLUME IV, ADB112917; VOLUME V, ADB112918; VOLUME VII, ADB112919).

TITLE: CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT - TREATMENT APPROACHES, INTRODUCTION, VOLUME I OF VII VOLUMES
DATA SOURCE NO: HSD-TR-87-007, ADB112914
AUTHOR: W.S. AUGERSON, A. SIVAK, W.S. MARLEY
ORIGINATING ORG: ARTHUR D. LITTLE, INC., CAMBRIDGE, MA FOR HUMAN SYSTEMS DIVISION (HSD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS IS THE FIRST OF SEVEN EXTREMELY WELL REFERENCED VOLUMES ON CHEMICAL CASUALTY TREATMENT PROTOCOLS. THIS VOLUME IS AN INTRODUCTION, REVIEWING APPROACH TAKEN, BACKGROUND AND TREATMENT APPROACH RATIONALES. THE CHEMICAL CASUALTY TREATMENT PROTOCOL DEVELOPMENT PROJECT IS ENVISIONED AS A FOUR PHASE PROJECT WITH THESE SEVEN VOLUMES BEING THE RESULT OF PHASE ONE DEFINING TREATMENT APPROACH RATIONALE. PARTICULARS ADDRESSED IN THIS VOLUME ONE INCLUDE: ENVIRONMENTAL STRESSES, CONVENTIONAL, CHEMICAL, AND BIOLOGICAL WEAPONS; DETECTION AND DOSIMETER ISSUES (A TABLE OF CURRENT US AND FOREIGN DETECTION, IDENTIFICATION, AND WARNING EQUIPMENT IS GIVEN); AGENT/SKIN INTERACTIONS, SKIN PENETRATION AND DECONTAMINATION ISSUES; PATIENT ASSESSMENT AND TRIAGE (A TRAUMA SCORE SYSTEM INCORPORATING THE GLASGOW COMA SCALE WITH SURVIVAL PROBABILITIES FOR EACH TRAUMA SCORE IS PROVIDED). (SEE ALSO VOLUME II, ADB112915; VOLUME III, ADB112916; VOLUME IV, ADB112917; VOLUME V, ADB112918; VOLUME VII, ADB112919).

TITLE: DEXTERITY TESTING OF CHEMICAL DEFENSE GLOVES,
DATA SOURCE NO: AAMRL-TR-86-021, ADA173545
AUTHOR: K.M. ROBINETTE, C. ERVIN, G.F. ZEHNER
ORIGINATING ORG: ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: THE EFFECTS OF FOUR TYPES OF CHEMICAL DEFENSE GLOVES (12.5 MIL EPICHLOROHYDRON/BUTYL, 14 MIL EPICHLOROHYDRON/BUTYL, 14 MIL BUTYL AND 7 MIL BUTYL WITH NOMEX OVERGLOVES) ON HAND DEXTERITY WERE EVALUATED. SUBJECTS PERFORMED FOUR DEXTERITY TESTS (O'CONNOR FINGER DEXTERITY TEST, PENNSYLVANIA BI-MANUAL WORKSAMPLE-ASSEMBLY, MINNESOTA RATE OF MANIPULATION TURNING, AND THE CRAWFORD SMALL PARTS DEXTERITY TEST-SCREWS) BOTH WITH AND WITHOUT THE GLOVES. PERFORMANCE WAS MOST IMPAIRED BY THE 7 MIL BUTYL WITH NOMEX OVERGLOVE. DIFFERENCES AMONG THE

OTHER THREE GLOVED CONDITIONS WERE NOT STATISTICALLY SIGNIFICANT. NEGATIVE CORRELATIONS BETWEEN ANTHROPOMETRY AND GLOVED TEST SCORES SUGGEST POOR GLOVE FIT MAY HAVE AFFECTED SUBJECTS PERFORMANCE.

TITLE: EFFECTS OF ATROPINE SULFATE ON THE BODY AND SOME ELEMENTS OF FIGHTING CAPABILITY OF HEALTHY VOLUNTEERS
DATA SOURCE NO: AFMIC-HT-175-86, ADB107010
AUTHOR: V. VOJVODIC, N. ROSIC, M. VOJVODIC
ORIGINATING ORG: ARMED FORCES MEDICAL INTELLIGENCE CENTER (AFMIC), FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/11/21

COMMENTS: THIS DOCUMENT DISCUSSES HOW ATROPINE SULFATE IN A DOSE OF TWO MILLIGRAMS (2 MG), INJECTED INTRAMUSCULARLY, AFFECTS THE BODY OF HEALTHY PEOPLE, AND IN THIS CONNECTION TO ANSWER THE PRACTICAL QUESTION: WHAT WOULD HAPPEN IF, IN COMBAT CONDITIONS, FOR WHATEVER REASON, SOLDIERS MAKE USE OF THE ATROPINE SYRETTE AND ARE NOT CONTAMINATED WITH NERVE AGENT. AFTER INTRAMUSCULAR INJECTION OF 2 MG ATROPINE SULFATE, DRYNESS OF THE MOUTH AND THROAT AND DROWSINESS WERE THE MOST PROMINENT OF THE SUBJECTIVE COMPLAINTS. OF THE OBJECTIVE CHANGES, TACHYCARDIA IS MOST NOTABLE AND CHANGES IN THE ARTERIAL PRESSURE WERE NOT IDENTICALLY PROMINENT IN ALL THE SUBJECTS. ALSO, MUCH WORSE SHOOTING RESULTS WITH THE MILITARY RIFLE WERE SCORED, AS COMPARED TO CONTROL GROUP PRIOR TO ATROPINE INJECTION.

TITLE: NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) CONTAMINATION AVOIDANCE CONCEPTS FOR AIRCRAFT APPLICATIONS
DATA SOURCE NO: AFWAL-TR-86-3005, ADB105553
AUTHOR: H.M. CLAEYS, R.F. SMISEK
ORIGINATING ORG: AIRESEARCH MANUFACTURING COMPANY, TORRANCE, CA FOR AIR FORCE FLIGHT DYNAMICS LABORATORY (AFWAL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/07/30

COMMENTS: THIS STUDY EVALUATES THE POTENTIAL, FEASIBILITY, AND PRACTICABILITY OF CONCEPTS TO AVOID INTERNAL CONTAMINATION OF AN ADVANCED FIGHTER AIRCRAFT USING CLOSED-LOOP ECS (ENVIRONMENTAL CONTROL SYSTEM) WHILE OPERATING IN AN NBC (NUCLEAR/BIOLOGICAL/CHEMICAL) ENVIRONMENT. CONCEPTS WERE BASED ON INTEGRATION OF NBC FILTER TECHNOLOGIES WITH ECS TECHNOLOGIES. SEVERAL FILTER TECHNOLOGIES WERE CONSIDERED, INCLUDING SEPARATION PROCESSES AND DESTRUCTIVE PROCESSES. CRITERIA FOR COMPARING CONCEPTS WERE TAKEOFF WEIGHT PENALTY, DEVELOPMENT RISK, LOGISTICS, AND PRACTICABILITY. DEVELOPMENT PROGRAMS TO PUT THE LEADING CONCEPTS INTO PRACTICE ARE RECOMMENDED. RESULTS, CONCLUSIONS, AND LOTS OF DATA ARE PRESENTED.

TITLE: CHANGE IN ATROPINE DOSE EFFECT CURVE AFTER SUBACUTE SOMAN ADMINISTRATION
DATA SOURCE NO: USAMRICD-P85-22, ADA171950
AUTHOR: H.E. MODROW, J.H. MCDONOUGH
ORIGINATING ORG: US ARMY MEDICAL RESEARCH INSTITUTE OF CHEMICAL DEFENCE (USAMRICD), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: RAT BEHAVIOR WAS MONITORED BY MEASURING THEIR ABILITY TO PRESS A LEVER FOR MILK REINFORCEMENT. THIRTY ONE RATS WERE USED TO DETERMINE AN ATROPINE DOSE EFFECT CURVE. STARTING ONE WEEK LATER, THE SAME RATS WERE GIVEN SOMAN (GB) INJECTIONS THREE TIMES PER WEEK FOR FOUR WEEKS. THEN 1, 28, AND 56 DAYS AFTER THE LAST SOMAN INJECTION ADDITIONAL ATROPINE TESTS WERE GIVEN AND THE ATROPINE DOSE EFFECT CURVES WERE RECALCULATED. THE RATS WERE MORE SENSITIVE TO ATROPINE AFTER THE SOMAN EXPOSURE WHICH CONFIRMED THE RESULTS OF PREVIOUS STUDIES. DETAILED RESULTS WERE PROVIDED.

TITLE: FEATURE GENERATION AND STATISTICAL ANALYSIS OF PHYSIOLOGICAL RESPONSES TO NERVE AGENT EXPOSURE
DATA SOURCE NO: USAFSAM-TR-85-52, ADA170142
AUTHOR: K.S. FU, P.H. SWAIN, P.E. ANUTA
ORIGINATING ORG: PURDUE UNIVERSITY, WEST LAFAYETTE, IN FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT DESCRIBES RESEARCH CARRIED OUT ON THE PROBLEM OF AUTOMATED INFORMATION EXTRACTION FROM MULTICHANNEL PHYSIOLOGICAL DATA TO DETERMINE IF THE PRESENT AND FUTURE STATE OF ORGANOPHOSPHATE-AFFECTED ANIMAL SUBJECTS CAN BE PREDICTED. INCLUDED ARE DISCUSSIONS OF DATA DIGITALIZATION, FEATURE GENERATION, AND DATA ANALYSIS.

TITLE: US ARMY TEST AND EVALUATION COMMAND, TEST OPERATIONS PROCEDURE, COLD REGIONS ENVIRONMENTAL TEST OF NUCLEAR, BIOLOGICAL, AND CHEMICAL EQUIPMENT (ALARMS AND DETECTORS)
DATA SOURCE NO: TOP-8-4-005, ADA163640
ORIGINATING ORG: US ARMY COLD REGIONS TEST CENTER, SEATTLE, WA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/01/01

COMMENTS: REPORT CONTAINS TEST OPERATIONS PROCEDURE (TOP) FOR THE EVALUATION OF THE PERFORMANCE OF NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) ALARMS AND DETECTION EQUIPMENT WHEN USED IN THE NATURAL COLD

REGIONS ENVIRONMENT. CONTAINS PROCEDURES FOR EVALUATING STORAGE, TRANSPORTATION, ENVIRONMENTAL PERFORMANCE (NO LIMITS SET), LOGISTIC SUPPORTABILITY, RELIABILITY, HUMAN FACTORS AND SAFETY.

TITLE: HUMAN VARIABILITY IN SUSCEPTIBILITY TO TOXIC CHEMICALS - I. NONCARCINOGENS
DATA SOURCE NO: EPA/600/8-86/033, PB87101242
ORIGINATING ORG: US ENVIRONMENTAL PROTECTION AGENCY (EPA), CINCINNATI, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/02/01

COMMENTS: TO STUDY HUMAN INTERINDIVIDUAL VARIABILITY, PAPERS FROM THE RECENT LITERATURE WERE USED TO CONSTRUCT A DATA BASE OF INDIVIDUAL MEASUREMENTS OF KEY PHARMACOKINETIC PARAMETERS FOR SPECIFIC SUBSTANCES (MOSTLY DRUGS). PAPERS HAD TO CONTAIN INDIVIDUALLY DISTINGUISHABLE HUMAN DATA FOR AT LEAST FIVE PEOPLE ON PARAMETERS RELATED TO SUSCEPTIBILITY TO TOXICANTS. THE PARAMETERS STUDIED (ELIMINATION HALF-LIVES, MAXIMUM BLOOD CONCENTRATIONS, AND AREA UNDER THE CURVE OF BLOOD CONCENTRATIONS) ARE ONLY COMPONENTS OF OVERALL SUSCEPTIBILITY TO TOXIC AGENTS, AND DO NOT INCLUDE VARIABILITY PARAMETERS THAT WOULD AFFECT EXPOSURE AND RESPONSE, NOR FROM AGE OR ILLNESS. THE RESULTS OF THIS VERY LIMITED COMPARISON ONL PROVIDE DIRECT EVIDENCE THAT THE DEGREE OF INTERINDIVIDUAL VARIATION AMONG NORMAL HEALTHY HUMANS IS NOT LESS THAN THAT EXPECTED FROM THE EXPERIMENTAL ANIMAL DATA.

TITLE: CHEMICAL WARFARE: PROGRESS AND PROBLEMS IN DEFENSIVE CAPABILITY
DATA SOURCE NO: GAO/PEMD-86-11 NTIS, PB86246378
ORIGINATING ORG: GENERAL ACCOUNTING OFFICE (GAO), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/07/01

COMMENTS: THIS REPORT DISCUSSES THE PROGRESS AND SHORTCOMINGS IN PROGRESS IN THE FOLLOWING AREAS OF INTEREST: WHAT PROGRESS HAS DEPARTMENT OF DEFENSE (DOD) MADE IN DEVELOPING THE DOCTRINE NEED TO SUPPORT INDIVIDUAL AND JOINT MILITARY OPERATIONS IN A CHEMICALLY CONTAMINATED ENVIRONMENT; WHAT PROGRESS HAS DOD MADE IN DEVELOPING AND PROCURING EQUIPMENT AND MATERIEL THAT WOULD ENABLE US FORCES TO SURVIVE CHEMICAL ATTACKS AND SUSTAIN OPERATIONS IN A CHEMICALLY CONTAMINATED ENVIRONMENT; WHAT PROGRESS HAS DOD MADE IN ESTABLISHING A FORCE STRUCTURE THAT WOULD PERMIT US FORCES TO CARRY OUT TRAINING, RECONNAISSANCE, DECONTAMINATION, AND OTHER DEFENSIVE MISSIONS IN CHEMICAL WARFARE; WHAT PROGRESS HAS DOD MADE IN PROVIDING TRAINING TO INDIVIDUALS AND UNITS TO SUPPORT THE PROBABILITY THAT THEIR RESPONSE TO A CHEMICAL ATTACK WILL BE

AUTOMATIC AND PRECISE AND THAT THEIR DISCIPLINE WILL BE MAINTAINED IN A CHEMICALLY CONTAMINATED ENVIRONMENT.

TITLE: EFFECTS OF STRESS ON MAINTENANCE PERFORMANCE
DATA SOURCE NO: AFHRL-TP-85-58, ADB104494
AUTHOR: G.A. KLEIN, P.G. JOHN
ORIGINATING ORG: KLEIN ASSOCIATES, YELLOW SPRINGS, OH FOR US AIR FORCE HUMAN RESOURCES LABORATORY (AFHRL), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS EFFORT TESTED USE OF THE COMPARISON-BASED PREDICTION (CBP) METHODOLOGY TO PREDICT THE EFFECT OF THE PSYCHOLOGICAL STRESS OF COMBAT CONDITIONS ON THE TIME NEEDED TO PERFORM BOTH ROUTINE AND COMPLEX AIR FORCE MAINTENANCE TASKS. COMPARABLE MAINTENANCE TASKS IN INDUSTRY WERE IDENTIFIED AND SETTINGS FOUND IN WHICH THE TASKS WERE PERFORMED ROUTINELY UNDER POTENTIALLY HAZARDOUS CONDITIONS, SO THAT PERSONNEL WERE ACCUSTOMED TO PRECAUTIONARY OPERATION ROUTINES AND TO THE PROTECTIVE GEAR. INDUSTRY PERSONNEL WERE INTERVIEWED CONCERNING THE LENGTH OF TIME TO COMPLETE TASKS UNDER ROUTINE CONDITIONS AND UNDER CONDITIONS WHERE REAL DANGERS WERE PRESENT. AIR NATIONAL GUARD (ANG) MAINTENANCE PERSONNEL WERE THEN INTERVIEWED TO ASSESS THESE PREDICTIONS. THE RESULTS SHOWED THAT THE CBP METHOD WAS FEASIBLE FOR THIS TASK. INDUSTRIAL AND ANG PERSONNEL AGREED ON A 20 PERCENT MEDIAN TASK TIME INCREMENT FOR AIR FORCE PERSONNEL ON COMPLEX TASKS AS A RESULT OF COMBAT STRESS.

TITLE: A METHOD FOR DETERMINING TASK TIME INCREASE CAUSED BY THE INDIVIDUAL PROTECTIVE ENSEMBLE
DATA SOURCE NO: AAMRL-TR-86-036, ADB108357
AUTHOR: T.L. RAMIREZ, R.L. SHEW, J.E. FELT, M.E. RAYLE, G.M. JAMES
ORIGINATING ORG: JAYCOR, DAYTON, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS STUDY WAS CONCERNED WITH THE DEVELOPMENT OF A METHODOLOGY FOR DETERMINING THE TASK TIME INCREASE FOR AIRCRAFT MAINTENANCE AND MUNITIONS TASK AS THEY APPLY TO THE CWTSAR MODEL. THE STUDY INVESTIGATED EACH AIR FORCE SPECIALTY CODE (AFSC) AND EACH TASK PERFORMED BY THAT AFSC INDEPENDENTLY RATHER THAN AN AGGREGATED APPROACH. HUMAN PERFORMANCE CRITERIA; VISION, DEXTERITY, PHYSIOLOGICAL CONDITIONS, PHYSICAL COORDINATION, COMMUNICATION, COGNITIVE EFFECTS, PSYCHOLOGICAL EFFECTS AND AUDITORY DETECTION, SURVEYS GIVEN (5 POINT SCALE). HUMAN PERFORMANCE DATA BASE INCLUDE ABILITIES, CRITICALITY, DIFFICULTY,

PERCENTAGE OF TASK, AND BASELINE TIME. METHODOLOGY INCLUDED WITH TASK TIME MULTIPLIER (TTM) MATRIX GLOSSARY AND SAMPLE CALCULATIONS. HUMAN PERFORMANCE MODEL CAN BE DETERMINED, TTM CAN BE CALCULATED, DATA COLLECTION FOR VARIOUS AIRCRAFT REQUIRED CHANGES THE MODELS SIMULATION.

TITLE: SYSTEM FOR INITIAL ASSESSMENT MANAGEMENT AND PHYSIOLOGIC MONITORING OF BATTLEFIELD CASUALTIES
DATA SOURCE NO: USAFSAM-TR-85-45, ADA170067
AUTHOR: B.A. HOUTCHENS, R.M. GARDNER, K. BRADSHAW, C. THOMAS
ORIGINATING ORG: UNIVERSITY OF UTAH, SALT LAKE CITY, UT FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS REPORT IDENTIFIES INITIAL REQUIREMENTS AND SYSTEM ASSESSMENT FOR A PROTOTYPE COMBAT CASUALTY MANAGEMENT SYSTEM. AREAS OF DISCUSSION INCLUDE CASUALTY FLOW PATTERNS, MEDICAL DECISION PROCESSES, COMPUTER REQUIREMENTS, CONCLUSIONS AND RECOMMENDATIONS. .

TITLE: TARGET SITES FOR ANTICHOLINESTERASES ON THE VENTRAL SURFACE OF THE MEDULLA OBLONGATA: HYPOTENSION ELICITED BY ORGANOPHOSPHORUS AGENTS
DATA SOURCE NO: ARO-22583.4-LS, ADA176696
AUTHOR: H. EDERY, M.A. GEYER, P. TAYLOR, H.A. BERMAN
ORIGINATING ORG: DEPARTMENT OF BIOCHEMICAL PHARMACOLOGY, STATE UNIVERSITY OF NEW YORK AT BUFFALO, BUFFALO, NY FOR US ARMY RESEARCH OFFICE (ARO), RESEARCH TRIANGLE PARK, NC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/15

COMMENTS: THE VENTRAL SURFACE OF THE MEDULLA OBLONGATA WAS EXPOSED TO ORGANOPHOSPHORUS AGENTS, OXIME REACTIVATORS, AND MUSCARINIC ANTAGONISTS TO IDENTIFY SITES OF CHOLINERGIC ACTIVITY IN THE CENTRAL NERVOUS SYSTEM. SOMAN (GD) AND AMINOPENTYL METHYLPHOSPHONOFLUORIDATE WERE APPLIED TOPICALLY TO THE MEDULLA OBLONGATA IN ANAESTHETIZED CATS. BOTH AGENTS ELICITED SEVERE AND LONGLASTING VASADEPRESSION, AND MINOR CHANGES IN HEART RATE AND RESPIRATION. TOPICAL APPLICATION OF MUSCARINIC ANTAGONISTS (ATROPINE METHENITRATE AND ATROPINE SULPHATE) AND AN OXIME REACTIVATOR (HI-6) RAPIDLY REVERSED THE VASADEPRESSION. THE FLUORESCENCE DISTRIBUTION OF THE AGENTS SHOWED THE SITES OF CHOLINERGIC ACTIVITY TO RESIDE NO DEEPER THAN 50 MICRONS WITHIN THE MEDULLA.

TITLE: A REVIEW OF BIOMEDICAL ASPECTS OF CB MASKS AND THEIR RELATIONSHIP TO MILITARY PERFORMANCE
DATA SOURCE NO: USARIEM-T1/86, ADA176307
AUTHOR: S.R. MUZA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/10/01

COMMENTS: BIOMEDICAL ASPECTS OF CHEMICAL/BIOLOGICAL (CB) PROTECTIVE MASKS WHICH AFFECT WORK PERFORMANCE ARE REVIEWED. LONG TERM WEAR FACTORS CONSIDERED INCLUDE: 1) RESPIRATORY DIFFICULTIES, 2) THERMAL STRESS, 3) RESTRICTED VISION, 4) SPEECH TRANSMISSION AND RECEPTION DIFFICULTIES, 5) CLAUSTROPHOBIA, 6) SLEEP LOSS, 7) LACK OF NUTRIENT INTAKE, 8) PHYSICAL STRESS OF THE FACE, AND 9) INCREASED EXTERNAL DEAD SPACE (THE AIR IN THE AIRWAYS AT THE END OF EXPIRATION). ALTHOUGH EACH TOPIC IS DISCUSSED THE REVIEW IS GENERAL IN NATURE AND NO COMPARISONS ARE MADE BETWEEN SPECIFIC MODELS OF MASKS.

TITLE: LABORATORY TECHNIQUES FOR DETERMINING THE EFFECTS OF PYRIDOSTIGMINE BROMIDE
DATA SOURCE NO: USAFSAM-TR-86-32, ADA176107
AUTHOR: F.R. PARKER, J.A. BARBER, E.M. FORSTER, J.E. WHINNERY
ORIGINATING ORG: ROTHE DEVELOPMENT INCORPORATED, SAN ANTONIO, TX FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/11/01

COMMENTS: THE USAF SURGEON GENERAL HAS APPROVED THE PYRIDOSTIGMINE BROMIDE (PB) PRETREATMENT FOR FLYING PERSONNEL AS OF 21 MARCH 1986. SPECIFIC SIDE EFFECTS RESULTING FROM TAKING PB DURING HIGH SUSTAINED POSITIVE G (GZ) STRESS, ALTITUDE STRESS, AND PERIODS OF POTENTIAL SPATIAL DISORIENTATION HAD NOT BEEN INVESTIGATED. THIS REPORT DOCUMENTS THE ESTABLISHMENT OF RELIABLE LABORATORY TECHNIQUES FOR ANALYSIS OF PB AND ACETYLCHOLINESTERASE (ACHE) INHIBITION BY THE US AIR FORCE SCHOOL OF AEROSPACE MEDICINE. THE ANALYTICAL TECHNIQUES DESCRIBED HEREIN ARE RELIABLE METHODS FOR RAPID DETERMINATION OF PLASMA PB AND ACHE INHIBITION RESULTING FROM ORAL INGESTION OF PB.

TITLE: SUBJECT: GENETIC ENGINEERING AND DESIGNER DRUGS
ORIGINATING ORG: DEFENSE INTELLIGENCE AGENCY (DIA), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/15

COMMENTS: THE SOVIET DOCUMENT AVIATION STUDIES (CODEN AJWEE) INDICATES THAT GENETIC ENGINEERING AND DESIGNER DRUGS HAVE BLURRED THE DISTINCTION BETWEEN CHEMICAL AND BIOLOGICAL WEAPONS. IT MAKES IT HIGHLY ARTIFICIAL TO LOOK AT CHEMICAL WEAPONS AND PRETEND BIOLOGICAL WEAPONS DO NOT EXIST. DISCUSSES THE POTENTIAL USE OF BIOLOGICAL WEAPONS (OF VARIOUS TYPES) OVER A PORT FACILITY AND THE RESULTING CHAOS. STATES THAT SUCH MEASURES GO ALONG WITH THE NEED TO PRESERVE FACILITIES IN DEFEATED WESTERN COUNTRIES SO THEY CAN BE PUT TO WORK FOR THE SOVIET EMPIRE.

TITLE: BIOMEDICAL EFFECTS OF CHEMICAL-THREAT-AGENT ANTIDOTE AND PRETREATMENT DRUGS: AN ABSTRACTED BIBLIOGRAPHY, VOLUME I, NAMRL-MONOGRAPH-34
DATA SOURCE NO: ADA176371
AUTHOR: J.M. LENTZ, G.G. REAMS, C.A. DEJOHN
ORIGINATING ORG: NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY, PENSACOLA, FL FOR NAVAL MEDICAL RESEARCH AND DEVELOPMENT CENTER, BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: EXCELLENT ANNOTATED BIBLIOGRAPHY COVERING PRETREATMENT AND ANTIDOTE DRUGS. FOR EACH DRUG TESTED THE FOLLOWING DATA ARE GIVEN: AUTHORS, TITLE, REFERENCE, DRUG USED, SUBJECTS (HUMANS, ANIMALS, ETC), PROCEDURES (OR PURPOSE OF RESEARCH), FINDINGS (DIRECT AUTHOR QUOTES USED WHEN POSSIBLE), COMMENTS, AND INDEX. INDEX CONTAINS TOPIC AREA DESCRIPTIONS: DRUG (E.G., ATROPINE, OXIME, PYRIDOSTIGMINE, NERVE AGENT, DRUG-OTHER); BIOCHEMICAL DISCIPLINE (E.G., VISION, AUDITORY, SPATIAL, CARDIOPULMONARY, MUSCULOSKELETAL, PERFORMANCE, PHARMACOLOGY, CUTANEOUS, CORTICAL, REVIEW); AND APPLICATION (E.G., HUMAN, NON-HUMAN). EACH DOCUMENT IS NUMBERED AND A SUBJECT INDEX ALLOWS EXAMINATION OF ANY TOPIC LISTED ABOVE UNDER INDEX. MOST REFERENCES ARE JOURNAL ARTICLES.

TITLE: SELF-PACED HEAT ACCLIMATION PROCEDURES
DATA SOURCE NO: USARIEM-T-8/86, ADA170533
AUTHOR: L.E. ARMSTRONG, R.W. HUBBARD, J.P. DELUCA, E.L. CHRISTENSEN
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS DOCUMENT DISCUSSES AN INVESTIGATION THAT EVALUATED THE EFFECTIVENESS AND SAFETY OF SPHA (SELF-PACE HEAT ACCLIMATIZATION) PROCEDURES IN RECRUIT TRAINING OR IN THE PREPARATION OF UNACCLIMATIZED TROOPS DEPLOYING TO HOT ENVIRONMENTS ON SHORT NOTICE. FOURTEEN MALES PERFORMED 100 MINUTES OF INTERMITTENT EXERCISE DURING 9

SPHA WORK-REST CYCLES ON EIGHT DAYS. SPHA TRIALS WERE EFFECTIVE IN IMPROVING HEAT TOLERANCE IN THAT SIGNIFICANT REDUCTIONS WERE OBSERVED IN FINAL HEART RATE, FINAL RECTAL TEMPERATURE AND FINAL SKIN TEMPERATURE.

TITLE: THE EFFECTS OF WEARING CHEMICAL PROTECTIVE CLOTHING ON COGNITIVE PROBLEM SOLVING
DATA SOURCE NO: USARIEM-T18/86, ADA176206
AUTHOR: T.M. RAUCH, C. WITT, L. BANDERET
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS STUDY INVESTIGATES THE EFFECTS OF WEARING MISSION ORIENTED PROTECTIVE POSTURES (MOPP) LEVEL 4, MOPP LEVEL 2, AND NO MOPP ON COGNITIVE PROBLEM SOLVING. THE COGNITIVE TESTS RESULTS WERE COMPARED FOR SPEED AND ACCURACY DIFFERENCES AMONG THE MOPP LEVELS. THE STUDY CONCLUDED THAT MOPP 4 SIGNIFICANTLY DEGRADES COGNITIVE PROBLEM SOLVING COMPARED TO MOPP 2 AND NO MOPP. BECAUSE THERE WAS NO SIGNIFICANT VARIATION TO CORE BODY TEMPERATURE AMONG MOPP LEVELS, THE DIFFERENCES MAY BE ATTRIBUTED TO VISUAL DISTORTIONS AND MANUAL DEXTERITY FACTORS.

TITLE: EVALUATION OF NONINVASIVE MEASUREMENT METHODS AND SYSTEMS FOR APPLICATION IN VITAL SIGNS DETECTIONS: PART II. BREADBOARD DESIGN OF A VITAL SIGN DETECTOR
DATA SOURCE NO: USAFSAM-TR-85-44, ADA167956
AUTHOR: C.S. LESSARD, W.C. WONG, A. LEE
ORIGINATING ORG: TEXAS A&M UNIVERSITY, COLLEGE STATION, TX FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/01

COMMENTS: A PRIOR REPORT EVALUATED LITERATURE ON NONINVASIVE MEANS FOR MEASURING VITAL LIFE SIGNS OF INCAPACITATED MILITARY PERSONNEL IN A TOXIC FIELD ENVIRONMENT. THIS EVALUATION LED TC THESE FOUR POSSIBLE SYSTEMS (IN ORDER OF UTILITY RANKING): ELECTRONIC STETHOSCOPE, DRY ELECTRODE ELECTROCARDIOGRAM (ECG), INFRARED DEVISE TO MEASURE PULSE AND SKIN TEMPERATURE, AND SPHYGOMOMANOMETES TO MEASURE BLOOD PRESSURE. THIS REPORT PRESENTS THE CIRCUITS NECESSARY TO OBTAIN RESPIRATORY SOUNDS, CARDIAC SOUNDS, ONE ECG CHANNEL, AND SKIN TEMPERATURE, ALL MEASURED FROM THE AREA OF THE THROAT. A BREADBOARD PROTOTYPE USING ALL-COMMERCIAL COMPONENTS WORKED BETTER THAN ENVISIONED.

TITLE: CHEMICAL WARFARE PROGRESS AND PROBLEMS IN DEFENSIVE CAPABILITY
DATA SOURCE NO: GAO/PEMD-86-11
ORIGINATING ORG: US GENERAL ACCOUTING OFFICE (GAO), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/07/01

COMMENTS: RECOMMENDED READING FOR ANYONE NEEDING BACKGROUND ON MILITARY CAPABILITIES, DEFICIENCIES, AND PLANS TO IMPROVE THE SERVICES DEFENSIVE CHEMICAL WARFARE CAPABILITIES. DOCUMENT ADDRESSES THE FOLLOWING QUESTIONS: WHAT PROGRESS HAS THE DOD (DEPARTMENT OF DEFENSE) MADE IN DEVELOPING AND PROCURING EQUIPMENT AND MATERIEL; IN DEVELOPING DOCTRINE; IN ESTABLISHING A FORCE STRUCTURE; AND IN PROVIDING TRAINING TO SURVIVE, OPERATE, OR TRAIN IN A CHEMICALLY CONTAMINATED ENVIRONMENT? REPORT DISCUSSES EACH TOPIC, LISTS THE SHORTCOMINGS (IF ANY), AND DETAILS CURRENT EFFORTS TO IMPROVE DOD CAPABILITIES. EACH CHAPTER IS SUMMARIZED. THE FINAL CHAPTER SUMMARIZES ALL THE MATERIAL ON DOCTRINE, EQUIPMENT AND MATERIEL, FORCE STRUCTURE, AND TRAINING. SEE ALSO GAO/C-PEMD-86-2 FOR THE CLASSIFIED VERSION OF THIS REPORT.

TITLE: AIRCRAFT BATTLE DAMAGE AND REPAIR VOLUME I, A SURVEY OF ACTUAL COMBAT EXPERIENCE
DATA SOURCE NO: AFWAL-TR-86-3064
AUTHOR: J.M. VICE, J.R. LINDENMUTH, J. FOULK
ORIGINATING ORG: BOOZ-ALLEN AND HAMILTON, INC., BEAVERCREEK, OH FOR US AIR FORCE WRIGHT AERONAUTICAL LABORATORIES (AFWAL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS REPORT PRESENTS EXAMPLES OF ACTUAL COMBAT DAMAGE TO AIRCRAFT WHICH OCCURRED DURING SOUTHEAST ASIA COMBAT. REPAIRS WHICH WERE REQUIRED TO RESTORE THE DAMAGED AIRCRAFT TO FULLY MISSION-CAPABLE STATUS ARE ILLUSTRATED. GENERAL DESCRIPTIONS OF THE DAMAGE MECHANISMS OF THREE TYPES OF COMBAT THREATS (NON-EXPLODING PROJECTILES, EXPLODING PROJECTILES, AND MISSILE WARHEADS) ARE PROVIDED. CHARACTERISTICS OF SPECIFIC US (UNITED STATES), NATO (NORTH ATLANTIC TREATY ORGANIZATION), AND SOVIET WEAPONS ARE INCLUDED. THIS REPORT PROVIDES AN OVERVIEW OF SOME OF THE TYPES OF DAMAGE THAT AIRCRAFT BATTLE DAMAGE REPAIR (ABDR) PERSONNEL CAN EXPECT TO ENCOUNTER.

TITLE: LIST OF REPORTS PUBLISHED DURING FY86
DATA SOURCE NO: CRDEC-SP-87001, ADB106371
AUTHOR: J.N. COALE
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS REPORT LISTS ALL THE TECHNICAL MEMORANDUMS (TM), TECHNICAL REPORTS (TR), SPECIAL PUBLICATIONS (SP) AND CONTRACTOR REPORTS (CR) PRODUCED BY THE US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) BETWEEN 1 OCTOBER 1985 THROUGH 30 SEPTEMBER 1986. REFERENCES DOCUMENTS PUBLISHED BUT NOT SENT TO DEFENSE TECHNICAL INFORMATION CENTER (DTIC). LISTED BY REPORT NUMBER UNDER EACH TYPE OF PUBLICATION. NO INDEX IS GIVEN.

TITLE: EXTENDED OPERATIONS IN CONTAMINATED AREAS
DATA SOURCE NO: FC50-12
ORIGINATING ORG: ARMOR AND ENGINEER BOARD, FORT KNOX, KY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS REPORT PROVIDES TRAINING, LEADERSHIP, AND TACTICAL GUIDANCE FOR CONDUCTING COMBAT OPERATIONS WHERE CHEMICAL AGENTS ARE A THREAT. TOPICS INCLUDE ENEMY CAPABILITIES; CONTAMINATION DURATION; AGENT PERSISTENCY; AGENT SYMPTOMS; COPING STRATEGIES; WORK RATE TIME CHARTS FOR PROTECTIVE CLOTHING; COLLECTIVE SURVIVAL MEASURES FOR CREWS, SQUADS, AND PLATOONS; SAMPLE ACCLIMATION PROGRAM; COMPANY UNIT GUIDANCE FOR WEARING PROTECTIVE EQUIPMENT, UNMASKING AND CROSSING CONTAMINATED AREAS; AND PROBLEMS ENCOUNTERED IN CLOSE COMBAT AND COMBAT SUPPORT. CIRCULAR VALID THROUGH MARCH 1989.

TITLE: CONCEPT FORMULATION PACKAGE FOR THE NBC RECONNAISSANCE SYSTEM
DATA SOURCE NO: CRDEC-SP-86012, ADB104343
AUTHOR: J. GAMSON, W. KEANE, G. HATFIELD, M. ASSELIN, D. SICKENBERGER, S. MILCHLING, B. FROMM, T. KEMPTON, R. PENNSYLE, M. D'ANDRIES, J. CHAMPION, J. GROSS
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT DESCRIBES A TRADE-OFF DETERMINATION/ANALYSIS AND THE BEST TECHNICAL APPROACH FOR A NUCLEAR, BIOLOGICAL AND CHEMICAL RECONNAISSANCE SYSTEM (NBCRS). THE NBCRS IS TO PROVIDE A STANDARD CAPABILITY TO DETECT, COLLECT, CORRELATE AND DISSEMINATE NBC DATA, INTEGRATE PERSONNEL, EQUIPMENT AND VEHICLES INTO THE LATE 1990'S. SUBSYSTEMS IN THE NBCRS INCLUDE NUCLEAR AND CHEMICAL DETECTORS (NO BIOLOGICAL), A CENTRAL PROCESSING SYSTEM, COMMUNICATIONS SYSTEM, AND MICRO-METEOROLOGICAL SYSTEM. ONLY NEAR AND INTERMEDIATE TERM

TECHNOLOGIES WERE CONSIDERED. CHEMICAL DETECTORS CHOSEN WERE: ACADA, JCAD, ALAD, GEMS, CAM, AND THE XM21.

TITLE: A NINE-SIZE SYSTEM FOR CHEMICAL DEFENSE GLOVES
DATA SOURCE NO: AAMRL-TR-86-029, ADA173193
AUTHOR: K.M. ROBINETTE, J.F. ANNIS
ORIGINATING ORG: ANTHROPOLOGY RESEARCH PROJECT, INC., YELLOW SPRINGS, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/07/01

COMMENTS: THIS DOCUMENT IS A REPORT OF THE RESEARCH DONE TO DEVELOP A NINE-SIZE SYSTEM FOR CHEMICAL DEFENSE GLOVES FOR MEN AND WOMEN. DATA FOR TWO SYSTEMS ARE GIVEN: ONE FOR GLOVES WORN ON A BARE HAND, AND ONE FOR GLOVES WORN OVER A TYPICAL GLOVE LINER. BOTH SYSTEMS INCLUDE TWO SIZES FROM FEMALE DATA, TWO SIZES WHICH ARE INTEGRATED, AND FIVE SIZES FROM MALE DATA. THE NINE SIZES INCLUDE THREE HAND LENGTHS AND FOUR HAND CIRCUMFERENCES TO COVER ABOUT NINETY-FIVE PERCENT OF THE DISTRIBUTION OF HAND SIZES. THE NINE-SIZE SYSTEM WAS DECIDED ON AS THE BEST COMPROMISE FOR COSTS, LOGISTICS, AND FIT SENSITIVITY.

TITLE: MILITARY MEDICINE LITERATURE SURVEY
DATA SOURCE NO: TDCK-G-369, ADB108938
ORIGINATING ORG: TECHNISCH DOCUMENTATIE EN INFORMATIE CENTRUM, VOOR, DE KRIJGSMA, THE HAAG, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: DOCUMENT CONTAINS THE FOLLOWING TOPICS: MILD HYPOXIA AND VISUAL PERFORMANCE WITH NIGHT GOGGLES, GLAUCOMA- AN OVERVIEW, SOME ISSUES IN RESEARCH ON EFFECTS OF SUSTAINED WORK AND SLEEP LOSS PERFORMANCE, PSYCHOLOGICAL ISSUE IN THE DESIGN OF EXPERT SYSTEMS, AND SUBSEQUENT MILITARY ADJUSTMENT OF COMBAT STRESS REACTION CASUALTIES - A NINE YEAR FOLLOW-UP STUDY. ABOUT FIFTY PERCENT OF THE DOCUMENTS ARE IN GERMAN.

TITLE: DEVELOPMENT OF ENZYME-BASED SYSTEMS FOR USE IN WOUND PATIENT DECONTAMINATION
DATA SOURCE NO: ADA171456
AUTHOR: S.C. CROOKER, D.M. HOUMERE, J.P. KITCHELL, M.A. LANDRIGAN, A.S. MARTEL, C.M. MARTH, R.T. MARINO, D.J. TRANTOLO, D.L. WISE
ORIGINATING ORG: DYNATECH R/D COMPANY, CAMBRIDGE, MA FOR US ARMY

MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/14

COMMENTS: ELEVEN ACTIVE-SERINE ENZYMES WERE EVALUATED FOR REACTIVITY WITH DIISOPROPYLFLUOROPHOSPHATE (DFP). CARBOXYLESTERASE WAS VERY REACTIVE AND WAS EVALUATED WITH SOMAN (GD). THE FEASIBILITY OF USING THE ENZYMES FOR WOUND DECONTAMINATION WAS EVALUATED. A WOUND MODEL WAS DEVELOPED TO INCLUDE AGENT TRANSFER, AGENT DIFFUSION RATES AND REQUIRED PEPTIDE REACTION RATES. ELEVEN PEPTIDE FRAGMENTS WERE STUDIED WITH AMBIGUOUS RESULTS. A HYDROPHOBIC MATERIAL WITH A HYDROPHILIC COMPONENT AND PEPTIDE WAS CHOSEN TO BE THE LEAST DECONTAMINATION FORMULATION.

TITLE: THE ANTIMICROBIAL EFFECTS OF VARIOUS NUTRIENT ELECTROLYTE BEVERAGES
DATA SOURCE NO: NATICK/TR-86/048, ADA173832
AUTHOR: D.B. ROWLEY, D. JOHNSON, G.E. SHATTUCK
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: ELECTROLYTE BEVERAGES ARE REQUIRED WHEN PERSONNEL ARE ENCAPSULATED IN NUCLEAR BIOLOGICAL, AND CHEMICAL (NBC) WARFARE PROTECTIVE EQUIPMENT FOR PERIODS IN EXCESS OF SIX HOURS. BEVERAGES WERE EXAMINED FOR THE EXISTENCE AND MULTIPLICATION OF MOLDS, BACTERIAS, AND YEASTS WHICH MIGHT CREATE A STABILITY PROBLEM OR HEALTH HAZARD. IT WAS FOUND THAT SODIUM BENZOALE OR POTASSIUM SORBATE HAD TO BE ADDED TO PREVENT THE MULTIPLICATION OF YEAST AND MOLD IN THESE BEVERAGES. TABLES OF RESULTS ARE PRESENT.

TITLE: ANALYSIS OF WARTIME CONSUMPTION RATES FOR CHEMICAL DEFENSIVE EQUIPMENT, VOLUME II: APPENDICES A, B, AND C, DOCUMENTATION
DATA SOURCE NO: IDA-P-1851-VOL-2, ADA173929
AUTHOR: W.M. CHRISTENSON, E.P. KERLIN
ORIGINATING ORG: INSTITUTE FOR DEFENSE ANALYSES, ALEXANDRIA, VA FOR ASSISTANT SECRETARY OF DEFENSE FOR ACQUISITION AND LOGISTICS, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: OBJECTIVE WAS TO EVALUATE WARTIME CONSUMPTION RATES IN CHEMICAL WARFARE (CW) MATERIAL FOR USE IN DEVELOPING WAR RESERVE REQUIREMENTS. THE INSTITUTE FOR DEFENSE ANALYSIS' (IDA) IACWAR (TACTICAL WARFARE) MODEL WAS USED. THIS VOLUME DETAILS HOW ARMY SUPPORT FORCES WERE

AGGREGATED TO PROVIDE FUNCTIONAL SUPPORT UNITS AS TACWAR INPUTS, DECISION RULES DEFINED BY THE ARMY CHEMICAL SCHOOL, AND DISCUSSION OF A TACWAR POST PROCESSOR ACTUAL CONSUMPTION RATES ARE PROVIDED IN VOLUME III.

TITLE: FACTORS INFLUENCING THE SUSTAINED PERFORMANCE CAPABILITIES OF 155MM HOWITZER SECTIONS IN SIMULATED CONVENTIONAL AND CHEMICAL WARFARE ENVIRONMENTS
DATA SOURCE NO: USARIEM-T-11/86, ADA173693
AUTHOR: T.M. RAUCH, L.E. BANDERET, W.J. THARION, I. MUNRO, A.R. LUSSIER, B. SHUKITT
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS STUDY INVOLVED FOUR 155MM (MILLIMETER) HOWITZER SECTIONS PERFORMING 24 HOUR LIVE-FIRE SCENARIOS. THE FIRST SECTION WORE BATTLE DRESS UNIFORMS (BDU) WHILE THE REMAINING THREE WORE INDIVIDUAL PROTECTIVE EQUIPMENT (IPE) AND WERE IN MISSION ORIENTED PROTECTIVE POSTURE 4 (MOPP 4). THE AVERAGE DAYTIME TEMPERATURE WAS 95 DEGREES FAHRENHEIT (F). CASUALTIES, THOSE UNABLE TO CONTINUE, OCCURRED ONLY IN THE SECTIONS WEARING THE IPE. IT WAS CONCLUDED FROM THE MOPP 4 CASUALTY/SURVIVOR DIFFERENCES THAT PERCEPTION OF ONE'S OWN CONDITION DOES AFFECT PERFORMANCE. SOME PEOPLE DO NOT REACT FAVORABLY TO INCREASED STRESS LEVELS THAT RESULT FROM THE IPE. DATA ARE PRESENTED.

TITLE: PSYCHOLOGICAL FACTORS WHICH LIMIT THE ENDURANCE CAPABILITIES OF ARMOR CREWS OPERATING IN A SIMULATED NBC ENVIRONMENT
DATA SOURCE NO: USARIEM-T-14/86, ADA174273
AUTHOR: W.J. THARION, T.M. RAUCH, I. MUNRO, A.R. LUSSIER, L.E. BANDERET, B. SHUKITT
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS REPORT DISCUSSES THE PSYCHOLOGICAL FACTORS WHICH LIMIT THE ENDURANCE CAPABILITIES OF ARMOR CREWS OPERATING IN SIMULATED CONVENTIONAL AND CHEMICAL ENVIRONMENTS. THE STUDY USED ACTIVE DUTY SOLDIERS TO TEST THREE TREATMENT CONDITIONS: MISSION ORIENTED PROTECTIVE POSTURE 4 (MOPP 4), FIX, AND SUPER A CONTROL (MOPP 0) WAS ALSO USED. FIX ALLOWED FOR STRESS MITIGATION (E.G. EATING), SUPER USED COOLING VESTS AND OTHER DEVICES TO RELIEVE STRESS. IN MOPP 4 TESTS, CASUALTIES (SUBJECT WITHDREW) EXPERIENCED HIGHER DEPRESSIVE TENDENCIES AND LOWER SELF-MOTIVATION THAN SURVIVORS. THERE WAS A SIGNIFICANT DIFFERENCE BETWEEN CASUALTIES AND SURVIVORS FOR RESPIRATORY DISTRESS, MENTAL

FATIGUE, THERMAL STRESS, GENERAL FATIGUE, GASTROINTESTINAL DISTRESS AND MUSCLE EXHAUSTION. NO DIFFERENCE IN ALERTNESS WAS FOUND.

TITLE: TEST OPERATIONS PROCEDURE, COLD REGIONS ENVIRONMENTAL TEST OF CB PROTECTIVE MASKS
DATA SOURCE NO: TOP-8-4-006, ADA175742
AUTHOR: W.J. HASLEM
ORIGINATING ORG: US ARMY COLD REGIONS TEST CENTER, APO SEATTLE, WA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 85/11/01

COMMENTS: THIS DOCUMENT IS A TEST OPERATIONS PROCEDURE (TOP) THAT PRESCRIBES METHODS FOR TESTING PROTECTIVE MASKS IN THE NATURAL COLD REGIONS ENVIRONMENT. IT CONTAINS PROCEDURES FOR STORAGE, TRANSPORTATION, ENVIRONMENTAL PERFORMANCE, LOGISTIC SUPPORTABILITY, RELIABILITY, HUMAN FACTORS, AND SAFETY TESTS. IT DESCRIBES THE NECESSARY FACILITIES AND INSTRUCTION REQUIREMENTS FOR TEST ACCOMPLISHMENT.

TITLE: CHEMICAL WARFARE CHALLENGE TO AIRCREWS: VOLUME I--ANALYSIS AND RESULTS
DATA SOURCE NO: AAMRL-TR-86-054, ADC040553
AUTHOR: J.G. JENSEN, J.V. HANY, D.E. VANDERVEER, G.M. JAMES
ORIGINATING ORG: JAYCOR-DAYTON OPERATIONS OFFICE, FAIRBORN, OH, FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT- ATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/06/01

COMMENTS: REPORT ON A STUDY TO DETERMINE EXPECTED CHEMICAL CHALLENGE LEVELS ENCOUNTERED BY PILOTS PERFORMING TACTICAL AIR COMMAND (TAC), MILITARY AIRLIFT COMMAND (MAC), AND STRATEGIC AIR COMMAND (SAC) MISSIONS. SIXTEEN DIFFERENT MISSIONS WERE EXAMINED INVOLVING THIRTEEN DIFFERENT AIRCRAFT TYPES DURING A SIMULATED CENTRAL EUROPEAN CONFLICT. STUDY QUANTIFIED VAPOR CHALLENGE TO AIRCREWS AND AIRCRAFT AND LIQUID AGENT ON THE GROUND. THE STUDY EXAMINED CHEMICAL AGENT INTERACTION WITH THE AIRCRAFT'S ENVIRONMENTAL CONTROL SYSTEM (ECS) AND HAZARD LEVELS PRODUCED BY CONTAMINATED CARGO. VOLUME ONE CONTAINS THE EXECUTIVE SUMMARY, STUDY PLAN, AND ANALYSIS SECTION. DETAILED DESCRIPTIONS OF MISSION PROFILES ARE ALSO INCLUDED.

TITLE: EARLY DEVELOPMENT OF A HAZARDOUS CHEMICAL PROTECTIVE ENSEMBLE
DATA SOURCE NO: CG-D-24-86, ADA174885
AUTHOR: J.O. STULL
ORIGINATING ORG: ILC DOVER, INC., FREDERICA, DE FOR US COAST GUARD (USCG), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS REPORT DESCRIBES A US COAST GUARD PROGRAM FOR DEVELOPING A HAZARDOUS PROTECTIVE ENSEMBLE FOR PROTECTION OF PERSONNEL DURING CHEMICAL SPILL RESPONSE. DESCRIBED IS THE SELECTION AND TESTING OF CHEMICAL RESISTANT MATERIALS, DESIGN OF A TOTALLY ENCAPSULATING SUIT, DESIGN OF A FULL BODY COOLING GARMENT, CONSTRUCTION OF PROTOTYPE SUITS, AND LABORATORY EVALUATION OF THE ENSEMBLE.

TITLE: SUPPLIES AND SERVICES TO TEST AND EVALUATE MODIFIED FOOD PACKAGING SYSTEMS FOR RESISTANCE TO PENETRATION BY CHEMICAL AGENTS
DATA SOURCE NO: NATICK-TR-86-055L, ADB109591
AUTHOR: J.V. FRIEL, S.J. RODGERS
ORIGINATING ORG: MSA RESEARCH CORPORATION, PITTSBURGH, PA FOR US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/30

COMMENTS: THE PURPOSE OF THIS DOCUMENT WAS TO DETERMINE THE RESISTANCE TO CHEMICAL WARFARE (CW) AGENT PENETRATION OF THE TOTAL PACKAGING SYSTEM OF COMMISSARY ITEMS. A SURROGATE AGENT, DIISOPROPYL FLUOROPHOSPHATE (DFP), WAS USED AGAINST THE FOLLOWING PACKAGING MATERIALS (STRETCH WRAP, SARANEX, AND MYLAR TAPE). IT WAS FOUND THAT ALL OF THESE PACKAGING MATERIALS WERE PENETRATED BY SOMAN (GD), MUSTARD (HD), AND/OR DFP. IT WAS RECOMMENDED THAT SHIPPING CARTONS BE PACKAGED IN AN ALUMINUM FOIL LAMINATE MATERIAL.

TITLE: NEW DRUGS FOR PRETREATMENT OF ORGANOPHOSPHONATE INTOXICATION
DATA SOURCE NO: ADB109965
AUTHOR: C.D. BEDFORD, D.W. PARISH, A.L. DODGE
ORIGINATING ORG: SRI INTERNATIONAL, MENLO PARK, CA FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND (USAMRDC), FREDERICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/30

COMMENTS: DOCUMENT DISCUSSES THE DEVELOPMENT OF IMPROVED

PRETREATMENT DRUGS THAT ARE EFFECTIVE AGAINST POISONING BY ANTICHOLINESTERASE NERVE AGENTS, PARTICULARLY SOMAN (GD). THIS INVESTIGATION FOCUSES ON REVERSIBLE INHIBITORS OF ACETYLCHOLINESTERASE (ACHE), SPECIFICALLY ON TWO TYPES OF ANIONIC SITE MODIFIERS: BIS-QUATEPNARY, HETEROAROMATICS AND ARYLCYCLOALKYLAMINES. COMPOUNDS WERE DESIGNED AND SYNTHESIZED THAT PROVIDED LIFE-SAVING PROTECTION AGAINST GD INTOXICATION, WHEN ADMINISTERED IN A PRETREATMENT MODE.

TITLE: BIOPHYSICAL AND PHYSIOLOGICAL INTEGRATION OF PROPER CLOTHING FOR EXERCISE
DATA SOURCE NO: USARIEM-M-9-87, ADA175067
AUTHOR: R.R. GONZALEZ
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/11/06

COMMENTS: THIS REVIEW IS A DISCUSSION OF CURRENT BIOPHYSICAL AND THERMAL ADVANCES IN CLOTHING PROPERTIES. TOPICS DISCUSSED INCLUDE: EFFECTS OF EXERCISE IN BUFFERING CLOTHING INSULATION, EFFECTS OF MODERN DAY FIBER TECHNIQUES IN ALLOWANCE ON ADJUSTMENTS TO WATER VAPOR, AND THERMAL EXCHANGE AND SPECIAL ADVANTAGES USED IN FOSTERING HEAT EXCHANGE FOR ATHLETES.

TITLE: HUMAN FACTORS RESEARCH IN AIRCREW PERFORMANCE AND TRAINING: ANNUAL SUMMARY REPORT
DATA SOURCE NO: ARI-RN-86-97, ADA176099
AUTHOR: K.D. CROSS
ORIGINATING ORG: ANACAPA SCIENCES INC., FORT RUCKER, AL FOR US ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES, ALEXANDRIA, VA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/11/01

COMMENTS: DESCRIBES PROJECTS PERFORMED DURING 1 SEPTEMBER 1983 THROUGH 31 AUGUST 1984 BY ANACAPA SCIENCES, INC., FOR THE ARMY RESEARCH INSTITUTE, FORT RUCKER, ALABAMA. DESCRIBES SIXTEEN RESEARCH PROJECTS AIMED AT BASIC HELICOPTER TRAINING, INSTRUCTION, AIRCREW QUALIFICATION, SIMULATORS, AND COURSE SYLLABI. WORKLOAD AND REQUIREMENTS ANALYSES WERE ALSO PERFORMED. THE PROJECT IDENTIFIED THE ABILITY REQUIREMENTS FOR EACH OF FOUR ROTARY WING MISSIONS USING FUNCTIONAL TASK TAXONOMY.

TITLE: THE CHEMICAL WARFARE NERVE AGENTS: A REVIEW OF CARDIOPULMONARY PATHOPHYSIOLOGY AND RESUSCITATION
DATA SOURCE NO: USAMRICD-SP-85-109, ADA176319
AUTHOR: D.R. FRANZ
ORIGINATING ORG: US ARMY MEDICAL RESEARCH INSTITUTE OF CHEMICAL DEFENSE (USAMRICD), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/12/01

COMMENTS: THIS REPORT PROVIDES THE MEDICAL RESEARCH COMMUNITY WITH A NON-COMPREHENSIVE REVIEW OF EIGHTY-SEVEN DOCUMENTS RELATED TO CARDIOPULMONARY PATHOPHYSIOLOGY, RESUSCITATION, AND ANIMAL MODELING OF CHEMICAL WARFARE NERVE AGENT INTOXICATION. PROVIDES A CROSS-SECTION OF WHAT RESEARCH WAS DONE IN THIS PART OF THE CHEMICAL DEFENSE RESEARCH PROGRAM BETWEEN WORLD WAR II AND THE EARLY 1980'S. VERY BRIEF SUMMARIES OF MOST OF THE DOCUMENTS ARE PROVIDED. SUMMARIES ARE GROUPED BY TOPICS (TOXICITY, RESUSCITATION, ETC.) INCLUDES SPECIES-TO-SPECIES VARIATION COMMENTS ON TOXICITY TO ANIMALS.

TITLE: COMBAT HISTORY ANALYSIS STUDY EFFORT (CHASE) DATA ENHANCEMENT STUDY (CDES), VOLUME V: TASKS 6, 7, 8, AND 9
DATA SOURCE NO: HERO-129, ADA175716
AUTHOR: B. BADER, J.R. BRINKERHOFF, T.N. DUPUY, C.C. JOHNSON, C.R. SMITH
ORIGINATING ORG: HISTORICAL EVALUATION AND RESEARCH ORGANIZATION (HERO), FAIRFAX, VA FOR US ARMY CONCEPTS ANALYSIS AGENCY (CAA), BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/01/31

COMMENTS: THIS REPORT CONTAINS INFORMATION ON THE CLARIFICATION OF THE DEFENDERS POSTURE DESCRIPTION (REFERS TO VOLUME II OF ORIGINAL DATA BASE), IDENTIFICATION OF QUALITY OF STRENGTH AND LOSS DATA (REFERS TO VOLUME III), DEVELOPMENT OF STRENGTH AND ATTRITION HISTORIES FOR SELECTED BATTLES AND ASSISTANCE IN ELIMINATING UNWANTED REDUNDANCIES.

TITLE: NAVAL SUPPORT ACTIVITY HOSPITAL, DANANG, COMBAT CASUALTY STUDY
DATA SOURCE NO: NAVHLTHRSCHC-86-1, ADA167907
AUTHOR: B.G. MCCAUGHEY, J. GARRICK, L. CAREY, J.B. KELLEY
ORIGINATING ORG: NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/01/01

COMMENTS: THIS DOCUMENT CONTAINS A SUMMARY OF PATIENTS ADMITTED TO NAVAL SUPPORT ACTIVITY HOSPITAL (USAH), DANANG, REPUBLIC OF VIETNAM, DURING THE PERIOD 1 JANUARY TO 30 JUNE 1968. A BREAKDOWN OF THE TYPES OF INJURIES, FREQUENCY OF OCCURANCE, LOCATION OF INJURY, TYPE OF WOUNDING AGENT, AND TRANSIT TIMES IS INCLUDED. THIS DOCUMENT ONLY PRESENTS A FEW SUMMARIES OF THE INFORMATION AVAILABLE FROM THE SURGICAL DATA BASE CONSTRUCTED OVER THE PERIOD. A LIST OF DATA BASE FIELDS IS CONTAINED IN AN APPENDIX.

TITLE: REDLEG - PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF NUCLEAR, BIOLOGICAL, AND CHEMICAL AND EXTENDED OPERATIONS ON CREWS (P2NBC2) COMMAND POST VEHICLE LIFE SUPPORT EXERCISE
DATA SOURCE NO: NATICK/TR-86/049L, ADB110649
AUTHOR: G.A. DARSCH
ORIGINATING ORG: NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: FOOD AND FOOD SYSTEM CONCEPTS WERE PROVIDED TO SUPPORT COMBAT VEHICLE CREW MEMBERS WHILE THEY OPERATED IN TWO DISTINCT NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) MODES. SIX FOOD SYSTEM CONCEPTS WERE FURNISHED TO CREW MEMBERS OPERATING IN A COLLECTIVE PROTECTION SCENARIO (MISSION ORIENTED PROTECTIVE POSTURE 2 (MOPP 2)). INDIVIDUALLY ENCAPSULATED CREW MEMBERS (MOPP 4) SUBSISTED ON PROTOTYPE FOOD SYSTEM CONCEPTS THAT ALLOWED THROUGH-THE-MASK FEEDING. THE DEMONSTRATION WAS QUITE SUCCESSFUL, ADVANCING THE TECHNOLOGY TO SUSTAIN THE SOLDIER ON THE CONTAMINATED BATTLEFIELD.

TITLE: SEYMOUR JOHNSON CHEMICAL WARFARE EXERCISE FIELD STUDY AND DATA ANALYSIS
DATA SOURCE NO: AAMRL-TR-87-003, ADC040556
AUTHOR: T.L. RAMIREZ, R.L. SHEW, C.M. DEMBECK, J.C. SIMONS, C.R. SHOFNER, G.M. JAMES
ORIGNATING ORG: JAYCOR, DAYTON, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/10/31

COMMENTS: REPORT SUMMARIZES HUMAN PERFORMANCE DATA COLLECTED AT A THREE DAY CHEMICAL WARFARE (CW) SORTIE GENERATION EXERCISE HELD AT SEYMOUR-JOHNSON AIR FORCE BASE (AFB). DATA ANALYSIS AND RESULTS ARE PRESENTED. PRIMARY THRUST OF THE REPORT IS IN SUPPORT OF THE SIMULATION MODEL CWTSAR (THE CHEMICAL WARFARE VERSION OF THE THEATER SIMULATION OF AIRBASE RESOURCES MODEL). DATA INCLUDED IN THE REPORT: IPE (INDIVIDUAL PROTECTIVE EQUIPMENT), TASK TIME DEGRADATION BY COMPONENTS; DETAILED

COLLECTIVE PROTECTION PROCESSING AND QUEUING DATA; IC ; GRATED
COMBAT TURNAROUND) AND MAINTENANCE REPAIR TASKS; SUF INTERVIEWS
AND QUESTIONNAIRES FOR GROUNDCREW AND AIRCREW TASKI AINTENANCE
WORK AROUNDS.

TITLE: PRETREATMENT SIDE EFFECTS DATA BASE DEVELOPMENT
DATA SOURCE NO: AAMRL-TR-87-006, ADC040555
AUTHOR: T.L. RAMIREZ, S.P. MORTHLAND, C.D. SOERGEL, G. ALLREAD, G.M. JAMES
ORIGINATING ORG: JAYCOR, DAYTON, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON, AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/08/22

COMMENTS: THIS DOCUMENT GAVE RESULTS OF DOCUMENTS REVIEWED FOR A DATABASE THAT EXAMINES THE POTENTIAL SIDE EFFECTS OF CHEMICAL AGENT PRETREATMENT/ANTIDOTAL DRUGS. THE BODY OF THE REPORT CONSISTS OF AN ANNOTATED BIBLIOGRAPHY OF DOCUMENTS WHICH CONTAIN DATA ON SIDE EFFECTS. DURING RESEARCH IT BECAME APPARENT THAT THE AREAS OF CONCENTRATED RESEARCH CENTERED ON A PARTICULAR GROUP OF DRUGS DURING EACH OF THE PAST FOUR DECADES. THE APPENDICES CONTAIN BIBLIOGRAPHIES BY THESE YEAR GROUPINGS: 1950-1959, 1960-1969, 1970-1979, AND 1980-1986.

TITLE: PROPHYLACTICS AND ANTIDOTES AGAINST ACETYLCHOLINESTERASE INHIBITION BY NERVE GASES
DATA SOURCE NO: ADB109389
AUTHOR: D.T. WITIAK
ORIGINATING ORG: PHARMACOLOGICAL AND TOXICOLOGICAL RESEARCH INSTITUTE, OHIO STATE UNIVERSITY, COLUMBUS, OH FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: 2-PAM, TMB, AND TOXOGONIN ARE USEFUL IN THE TREATMENT OF ORGANOPHOROUS POISONING. PRELIMINARY BIOLOGICAL RESULTS SHOW A 40 PERCENT INCREASE IN SURVIVAL OF MICE TREATED WITH SOMAN (GD) WHEN CERTAIN POLYPHEUOLICS LINKED TO A PYRIDINE GROUP WERE PREADMINISTERED IN CONJUNCTION WITH 2-PAM AND ATROPINE. THIS SYNERGISTIC EFFECT WAS NOT OBSERVED WHEN TERTIARY NITROGENS WERE QUATERNIZED. ALSO INVESTIGATED WERE POLYPHENOLICS LINKED TO TWO ARYL GROUPS IN PLACE OF THE PYRIDINE NUCLEUS. A TOTAL OF 46 COMPOUNDS WERE SUBMITTED FOR BIOLOGICAL TESTING. TEST PROCEDURES ARE DESCRIBED AND RESULTS ARE QUANTIFIED. COVERS THE RESULTS OF TWO YEARS OF TESTING.

TITLE: CHEMICAL WARFARE AGENT DECONTAMINATION, ARE WE ON THE RIGHT TRACK?
DATA SOURCE NO: ACSC-86-1810, ADB102794
AUTHOR: D.G. MULLINS
ORIGINATING ORG: US AIR FORCE AIR COMMAND AND STAFF COLLEGE (ACSC), MAXWELL AFB, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS PAPER ASSESSES THE STATUS OF US AIR FORCE EFFORTS TO DEVELOP AN EFFECTIVE DECONTAMINATION PROGRAM FOR PERSONNEL, AIRCRAFT, AND EQUIPMENT. IT IDENTIFIES TYPES OF AGENTS BELIEVED POSSESSED BY THE SOVIETS AND DESCRIBES SYMPTOMS AND HAZARDS FROM EXPOSURE TO THESE AGENTS. DECONTAMINATION EQUIPMENT AND METHODS ARE BRIEFLY REVIEWED WITH AN EMPHASIS ON PROPOSED TECHNOLOGY. PROBLEMS IN THE PROGRAM ARE RELATED DIRECTLY TO A LACK OF EXPERTISE, EXPERIENCE, AND RELEVANT LITERATURE, IN BOTH MILITARY AND INDUSTRY. THIS PAPER CONCLUDES THAT THE PROGRAM IS BEING WORKED AGGRESSIVELY, BUT MUCH REMAINS TO BE DONE. ONE PRIME CONTRACTOR TO ANALYZE AND INTEGRATE THE ENTIRE PROGRAM IS RECOMMENDED TO IMPROVE THE PROGRAM. NO DATA.

TITLE: SERVICE LIFE OF BATTLEDRESS OVERGARMENTS
DATA SOURCE NO: NATICK/TR-86/028L, ADB103621
AUTHOR: S.A. FREITAS, R.V. SPRING, R.F. KINNEY, R.S. LINDSAY, F.A. MANICKAS
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/02/01

COMMENTS: BATTLE DRESS OVERGARMENTS (BDO) WERE WORN FOR 7, 14, 22, AND 30 DAYS. SAMPLES WERE REMOVED FROM THE GARMENTS AND TESTED FOR MUSTARD (HD) AND SOMAN (GD) PENETRATION. IT WAS CONCLUDED THAT BDO WEAR TIME COULD BE EXTENDED FROM 14 TO 22 DAYS AND PROTECTION TIME FROM 6 TO 24 HOURS. RESULTS OF TESTING AND PROCEDURES ARE PRESENTED.

TITLE: MODELING AND ANALYSIS OF UNCERTAINTIES IN SURVIVABILITY AND VULNERABILITY ASSESSMENT
DATA SOURCE NO: AFWL-TR-85-84, ADA167630
AUTHOR: F.S. WONG
ORIGINATING ORG: WEIDLINGER ASSOCIATES, PALO ALTO, CA FOR US AIR FORCE WEAPONS LABORATORY (AFWL), KIRTLAND AFB, NM
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS STUDY IS BASED ON THE BELIEF THAT NOT ALL UNCERTAINTIES ENCOUNTERED IN SURVIVABILITY AND VULNERABILITY ASSESSMENT OF PROTECTIVE STRUCTURES ARE RANDOM. THIS REPORT DESCRIBES METHODS OF MODELLING RANDOM UNCERTAINTIES USING STOCASTIC TECHNIQUES AND NON-RANDOM UNCERTAINTIES USING FUZZY SET THEORY.

TITLE: MATHEMATICAL MODELS FOR PREDICTION OF NEUROPSYCHIATRIC AND OTHER NON-BATTLE CASUALTIES IN HIGH INTENSITY COMBAT
DATA SOURCE NO: BRL-CR-556, ADA171283
AUTHOR: S.G. LEVIN, J.T. KLOPCIC
ORIGINATING ORG: US ARMY BALLISTIC RESEARCH LABORATORY (BRL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/07/01

COMMENTS: HISTORICAL DATA ON COMBAT-PRODUCED NEUROPSYCHIATRIC (NP) CASUALTIES ARE MATHEMATICALLY FIT TO FUNCTIONS WHICH DEPEND UPON TIME IN COMBAT, WOUND IN ACTION RATE AND TYPE OF UNIT. DATA FROM WORLD WAR II ARE CONTRASTED WITH DATA FROM ISRAELI CONFLICTS TO DERIVE THE FUNCTIONAL DEPENDENCE AT COMBAT INTENSITY. THE FINAL RESULTS ARE PRESENTED AS CLOSED FORM EQUATIONS WHICH CAN BE USED TO ESTIMATE NP CASUALTIES IN QUANTITATIVE WARFARE SIMULATIONS.

TITLE: CHEMICAL DEFENSE COLLECTIVE PROTECTION TECHNOLOGY: VOLUME I: EFFECTS OF AIRLOCK DIMENSION, CLOTHING, AND EXPOSURE CONCENTRATION ON VAPOR TRANSPORT
DATA SOURCE NO: USAFSAM-TP-86-2, ADA178988
AUTHOR: J.P. CONKLE, R.E. MIRANDA, J.R. FISCHER, R.W. PAGE, D.L. BARTLETT
ORIGINATING ORG: US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/12/01

COMMENTS: PROCEDURES FOR PROCESSING PERSONNEL THROUGH A SIMULATED SURVIVABLE COLLECTIVE PROTECTION SHELTER CONTAMINATION CONTROL AREA (SCPS CCA) FACILITY WERE EMPLOYED TO EXAMINE THE CONTAMINATION OF TOXIC SAFE AREAS (TSA) AS A RESULT OF TRANSPORT OF CHEMICAL AGENT VAPOR ON CLOTHING UNDERLAYERS. AMOUNT OF VAPOR TRANSPORTED INTO TSA'S WAS EXAMINED AS A FUNCTION OF: AIRLOCK DESIGN, TYPE OF OUTER CLOTHING WORN DURING EXPOSURE, AND VAPOR EXPOSURE CONCENTRATION. PERSONNEL, DRESSED IN FATIGUES OR IN FLYER'S CHARCOAL UNDER-COVERALLS (UNITED KINGDOM), WERE EXPOSED TO CHEMICAL AGENT SIMULANT (METHYL SALICYLATE) VAPOR, AND PROCESSED THROUGH THE LIQUID HAZARD AREA (LHA) AND VAPOR HAZARD AREA (VHA). DATA INDICATE THAT UK CHARCOAL UNDER-COVERALLS REDUCED THE AMOUNT

OF VAPOR TRANSPORTED INTO TSA, AND INCREASED THE INDIVIDUAL MORE THAN FATIGUES. NO STATISTICAL EVIDENCE OF AIRLOCK DIFFERENCE WERE FOUND.

TITLE: COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT (CANE) FORCE DEVELOPMENT TESTING AND EXPERIMENTATION (FDTE, SUMMARY EVALUATION REPORT, PHASE I
DATA SOURCE NO: ADB101686
AUTHOR: E.S. DRAPER, J.J. LOMBARDI
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS INTERIM REPORT PROVIDES THE RESULTS AND ANALYSIS OF PHASE I TESTING OF COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT CANE) CONDUCTED AT FORT HUNTER-LEGGETT, CA, MARCH THROUGH MAY 1983. THE TROOPS EVALUATED OPERATED FOR 72 HOURS IN NORMAL FIELD GEAR (BASELINE) AND FOR 72 HOURS IN MOPP 4 (MISSIION ORIENTED PROTECTIVE POSTURE 4). FOR THESE EXERCISES IT WAS DETERMINED THAT LEADERS BECOME THE FIRST CASUALTIES BECAUSE IT REQUIRES MORE PHYSICAL ACTIVITY TO OPERATE IN MOPP 4 CAUSING HEAT PROBLEMS WHICH AFFECT COGNITIVE OPERATIONS; ATTACK TIMES DOUBLED, AND TROOPS MADE LESS EFFECTIVE USE OF THE TERRAIN. OVERALL PERFORMANCE WAS DIRECTLY RELATED TO PRIOR TRAINING IN CHEMICAL WARFARE (CW) OPERATIONS. TROOPS DEVISED WORK AROUNDS AS NECESSARY FOR TASK ACCOMPLISHMENT. NO TASKS WERE FOUND TO BE "UNDOABLE" IN MOPP 4.

TITLE: ADVANCED BOMB DAMAGE REPAIR SYSTEM PHASE II: PROTOTYPE DESIGN
DATA SOURCE NO: ESL-TR-84-38, ADB100567
AUTHOR: A.S. KUBO, R.K. MOATES, E.A. GODFREY, M.D. HOFFMAN, R. TEEGARDEN, R.B. BENNETT, C. KISTLER, R. BERRY, D. OUNANIAN
ORIGINATING ORG: THE BDM CORPORATION, MCLEAN, VA FOR US AIR FORCE ENGINEERING AND SERVICES CENTER (AFESC) TYNDALL AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/01/01

COMMENTS: DOCUMENTS THE DESIGN OF A PROTOTYPE ADVANCED SYSTEM TO PROVIDE EXPEDIENT BOMB DAMAGE REPAIR. CONCEPT IS BASED ON PERCOLATING A WATER-TOLERANT POLYURETHANE THROUGH AGGREGATE TO PROVIDE A STRUCTURAL CAP. DEFINES MATERIEL REQUIREMENTS, PHYSICAL CHARACTERISTICS, HANDLING AND STORAGE REQUIREMENTS. DEFINES REPAIR TEAM EQUIPMENT AND PERSONNEL. PROVIDES DETAILED REPAIR TIMES FOR VARIOUS PHASES OF REPAIR BY CRATER SIZE. PROVIDES TASK NETWORK FLOW DIAGRAMS. PRESENTS A MODEL FOR EVALUATION WITH CRITICAL PATHS IDENTIFIED BY CRATER TYPE.

TITLE: TESTING AND EVALUATION METHODOLOGY VOLUME I: TECHNICAL SUMMARY AND GUIDE FOR CHEMICAL WEAPONS TESTING (APPENDIX A)
DATA SOURCE NO: AFATL-TR-86-15, AD3104512
AUTHOR: R. W. MENGEL, G.G. NORRIS, F.G. SHANTY, L.C. SPAIN, J.D. CLAIBORNE
ORIGINATING ORG: EAI CORPORATION, JOPPATOWNE, MD, FOR US AIR FORCE ARMAMENT LABORATORY, EGLIN AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/07/01

COMMENTS: STUDY OBJECTIVE WAS TO GENERATE AND DOCUMENT A METHODOLOGY FOR USE BY THE AIR FORCE IN TESTING AND EVALUATING DEVELOPMENTAL HARDWARE AT VARIOUS STAGES DURING DEVELOPMENT OF CONCEPTUAL CHEMICAL WEAPONS (CW) OR COMPONENTS. PROJECT ADDRESSED THESE TASKS: IDENTIFICATION AND ASSESSMENT OF EXISTING CHEMICAL WEAPONS MODELS; SURVEY OF TEST RANGES TO SUPPORT TESTING; COMPILATION OF SIMULANTS FOR CW TESTING; IDENTIFICATION OF TEST EQUIPMENT AND ANALYTICAL METHODS FOR CW TESTING; DESIGN OF A TEST GRID FOR PRELIMINARY SMALL SCALE TESTING AT EGLIN AFB; AND DEVELOPMENT OF A GUIDE FOR CW TESTING. CONTAINS REFERENCES TO DOCUMENTATION COVERING METHODOLOGY FOR SPECIFIC TEST OBJECTIVES. APPENDIX A CONTAINS THE GUIDE FOR CHEMICAL WEAPONS TESTING. (SEE ALSO ADB104513 FOR VOLUME II.)

TITLE: TESTING AND EVALUATION METHODOLOGY VOLUME II: TECHNICAL APPROACH (APPENDICES B - E)
DATA SOURCE NO: AFATL-TR-86-15, ADB104513
AUTHOR: R.W. MENGEL, G.G. NORRIS, F.G. SHANTY, L.C. SPAIN, J.D. CLAIBORNE
ORIGINATING ORG: EAI CORPORATION, JAPPATOWNE, MD, FOR US AIR FORCE ARMAMENT LABORATORY, EGLIN AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/07/01

COMMENTS: STUDY OBJECTIVE WAS TO GENERATE AND DOCUMENT A METHODOLOGY FOR USE BY AIR FORCE IN TESTING AND EVALUATING DEVELOPMENTAL HARDWARE AT VARIOUS STAGES DURING DEVELOPMENT OF CONCEPTUAL CHEMICAL WEAPONS (CW) OR COMPONENTS. SEE ADB104512 FOR TECHNICAL SUMMARY AND GUIDE FOR CW TESTING (APPENDIX A). THIS STUDY CONTAINS: APPENDIX B, IDENTIFICATION AND ASSESSMENT OF EXISTING CW MODELS; APPENDIX C, SURVEY OF TEST FACILITIES/RANGES TO SUPPORT AIR FORCE AIR DELIVERED CW TESTING; APPENDIX D, CW TESTING SIMULANTS; APPENDIX E, TEST METHODOLOGY AND PROCEDURES; IDENTIFICATION OF TEST EQUIPMENT; ANALYTICAL METHODS FOR CW TESTING. EACH APPENDIX HAS A GOOD SET OF REFERENCES FOR THE APPLICABLE TOPIC.

TITLE: FIXED SITE DETECTION AND WARNING SYSTEM, SUMMARY OF RESULTS, BRIEFING
DATA SOURCE NO: B-034-87
ORIGINATING ORG: VERAC, INC., SAN DIEGO, CA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/12/18

COMMENTS: BRIEFING SUMMARIZES THE RESULTS OF A TRADEOFF DETERMINATION ANALYSIS, AND BEST TECHNICAL APPROACH OF THE JOINT SERVICE FIXED SITE DETECTION AND WARNING (FSDW) SYSTEM. LISTS CANDIDATE DETECTORS: SITE SELECTION: THREAT SITUATIONS (MISSILES AND BOMBS WITH THICKENED SOMAN (TGD), BOMBS WITH SARIN (GB), AND MISSILES WITH V-AGENTS); DETECTOR CONFIGURATION TRADEOFF ANALYSIS; AND RANKING OF DETECTOR MIXES. FSDW COMPONENTS DISCUSSED INCLUDE DETECTOR NETWORKS (MIXES AND PLACEMENT STRATEGIES), WEATHER DATA REQUIREMENTS, COMMUNICATION LINKS, AND COMPUTER ARCHITECTURE.

TITLE: EVALUATION OF NON-INVASIVE MEASUREMENT METHODS AND SYSTEMS FOR APPLICATION IN VITAL SIGNS DETECTION: PART 1. LITERATURE REVIEW
DATA SOURCE NO: USAFSAM-TR-85-44-PT-1, ADA167955
AUTHOR: C.S. LESSARD, W.C. WONG
ORIGINATING ORG: INDUSTRIAL ENGINEERING DEPARTMENT, TEXAS A&M UNIVERSITY, COLLEGE STATION, TX FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/01

COMMENTS: REPORT DISCUSSES CURRENT LITERATURE ON NON-INVASIVE METHODS AND INSTRUMENTS FOR MEASURING VITAL SIGNS OF INCAPACITATED MILITARY PERSONNEL IN A TOXIC FIELD ENVIRONMENT. SPECIFIC GOALS OF THE STUDY WERE: TO DETERMINE THE SET OF PHYSIOLOGICAL PARAMETERS MOST LIKELY TO GIVE THE CONDITION OF AN INDIVIDUAL, TO EVALUATE CURRENT NON-INVASIVE TECHNIQUES AND INSTRUMENTS TO PERFORM THE VITAL SIGN DETECTION IN THE FIELD WITHOUT VIOLATING THE INTEGRITY OF THE CHEMICAL PROTECTIVE GEAR, AND TO RECOMMEND AREAS OF TECHNOLOGICAL DEVELOPMENT IN THE AREA.

TITLE: HEAT EXCHANGE RESPONSES TO ANTICHOLINERGICS
DATA SOURCE NO: USARIEM-M29/86, ADA168065
AUTHOR: R.R. GONZALEZ, M.A. KOLKA
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/03/01

COMMENTS: REPORT DESCRIBES THREE RELATED STUDIES INVESTIGATING THERMO-REGULATORY RESPONSES AFTER ATROPINE INJECTION. SUBJECTS WERE INJECTED WITH SALINE AND ATROPINE (2 MG (MILLIGRAM) INTRAMUSCULARLY) BOTH BEFORE AND AFTER HEAT ACCLIMATION (SUBJECTS WALKED A TREADMILL IN A HOT-DRY ENVIRONMENT AND IN A HOT-WET ENVIRONMENT). TEMPERATURE AND HEART RATE WERE OBSERVED. RESULTS SHOWED HEAT ACCLIMATION REDUCED SUBJECTS' EFFECTIVE TEMPERATURE BY AN AVERAGE OF 2.5 DEGREES CELSIUS AND ALSO INCREASED SUBJECTS' BLOOD FLOW AS COMPARED TO THE UNACCLIMATED STATE AFTER ATROPINE INJECTION.

TITLE: CHEMICAL-BIOLOGICAL (CB) PROTECTION FOR CREWMEMBERS OF THE ADVANCED ATTACK HELICOPTER (AH-64), VOLUME I, DATA
SOURCE NO: CRDEC-CR-87023, ADB108612
AUTHOR: L. DICKERSON, F. ANDREAN, G. BURNETT, L. CROMER, R. DECOWSKY, L. JOHNSON, W. KEUNG, J. LOMAX, J. REITSMA, T. SYLVESTER
ORIGINATING ORG: ILC DOVER INC., FREDERICA, DE FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: REPORT DESCRIBES A PROGRAM TO DEVELOP A SPECIAL PROTECTIVE MASK FOR AH-64 HELICOPTER AIRCREWS. THE CURRENT MASK IS NOT COMPATIBLE WITH AH-64 SYSTEMS. EIGHTEEN MOCK UP DESIGNS WERE EVALUATED. DATA IS INCLUDED ON FIELD OF VISION, FREEDOM OF MOVEMENT, SIZING, ETC. PROTECTION FACTOR GOALS ARE PROVIDED. REPORT IS HIGHLY DOCUMENTED AND INCLUDES DETAILED LABORATORY TEST PROCEDURES AND TEST RESULTS.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION (SALTY DEMO), VOLUME II, PART 2, ANNEXES F-O
DATA SOURCE NO: YQ-DR-86-1, ADB109125
ORIGINATING ORG: AIR BASE SURVIVABILITY (ABS) SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/01/10

COMMENTS: SALTY DEMO, A DEMONSTRATION OF AIR BASE SURVIVABILITY INITIATIVES, WAS CONDUCTED BY THE US AIR FORCE AT SPANGDAHLEM AB, WEST GERMANY BETWEEN 29 APRIL AND 17 MAY 1985. THIS VOLUME CONTAINS ANNEXES F THROUGH O OF THE SALTY DEMO FINAL REPORT. ANNEX F PROVIDES SOME DETAILS AT THE CASUALTY GENERATION METHODOLOGY DEVELOPED BY THE AEROSPACE MEDICAL DIVISION (AMD) AND BDM CORPORATION. ANNEX G CONTAINS THE SALTY DEMO GROUND RULES AND SPECIAL INSTRUCTIONS. ANNEX H IS THE 52 TACTICAL FIGHTER WINGS (TFW) SALTY DEMO INFLIGHT GUIDE. ANNEX I IS THE POST-DEMO 52 TFW EXERCISE AID. ANNEX J LISTS THE DEMO CONTROL TEAM PROCEDURES. ANNEX K HAS THE SALTY DEMO VISITORS LIST. ANNEX L IS THE

SALTY DEMO COST SUMMARY. ANNEX M CONTAINS THE AIR BASE SURVIVABILITY (ABS) ORGANIZATIONAL LISTING. ANNEX N CONTAINS REFERENCES. ANNEX O LISTS THE AUDIO-VISUAL MATERIALS USED TO DOCUMENT THE EXERCISE.

TITLE: RESEARCH STUDY GROUP ON THERAPY AND PROPHYLAXIS AGAINST CHEMICAL AGENTS
DATA SOURCE NO: AC/243-D/1076, ADB109321
AUTHOR: F. FONNUM
ORIGINATING ORG: PANEL ON THE DEFENCE APPLICATIONS OF HUMAN AND BIO-MEDICAL, SCIENCES, NORTH ATLANTIC TREATY ORGANIZATION (NATO), BRUSSELS, BELGIUM
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/13

COMMENTS: THE OBJECTIVE OF THIS RESEARCH STUDY GROUP IS TO PROMOTE COLLABORATION IN THE BIO-MEDICAL FIELD OF PRETREATMENT AGAINST NERVE AGENT POISONING. REPRESENTATIVES OF SEVERAL COUNTRIES (NORWAY, BELGIUM, CANADA, FRANCE, GERMANY, GREECE, THE NETHERLANDS, UK, USA) MET IN APRIL 1986 TO DISCUSS: POSSIBLE NEW PRETREATMENT AGENTS, EFFECTS OF CARBAMATE PRETREATMENT, PRESENT STATUS OF HI-6 RESEARCH, PATHOLOGY OF THE BRAIN AFTER EXPOSURE TO SOMAN (GD), AND CURRENT AND FUTURE RESEARCH STRATEGIES. THIS DOCUMENT CONTAINS ONLY GENERAL STATEMENTS ABOUT PRETREATMENT RESEARCH.

TITLE: DANISH BRIEFING ON CONTACT LENSES TRIALS (AGAINST CS)
DATA SOURCE NO: AC/225(PANEL VII)N/127, ADB109322
AUTHOR: B.E. KUSZCZ
ORIGINATING ORG: PANEL VII ON NBC DEFENCE, NORTH ATLANTIC TREATY ORGANIZATION (NATO), BRUSSELS, BELGIUM
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/15

COMMENTS: REPORT DISCUSSES TESTS PERFORMED TO DETERMINE THE SAFETY AND EFFICIENCY OF WEARING CONTACT LENSES IN AN ENVIRONMENT CONTAINING CS, A TEAR AGENT. TWO TEST METHODS WERE USED. IN THE FIRST METHOD, SUBJECTS WERE EXPOSED IN A GAS CHAMBER TO A CONCENTRATION OF 200 MILLIGRAMS PER CUBIC METER (MG/M3) OF CS TEAR GAS; IN THE SECOND METHOD, SUBJECTS WERE EXPOSED OUTSIDE TO A LARGE AMOUNT OF CS TEAR GAS. RESULTS SHOWED SUBJECTS WEARING CONTACT LENSES COULD TOLERATE THE TEAR GAS BETTER. FURTHER INVESTIGATIONS BASED ON EXTENDED WEAR CONTACT LENSES SHOULD BE FAVORABLY CONSIDERED AS PART OF THE REVISION EFFORT OF THE RESPIRATOR TRIPTYCH. ALSO INCLUDED IS AN ARTICLE PUBLISHED IN "MILITARY MEDICINE" WHICH DETAILS MUCH OF THE SAME RESEARCH. THIS ARTICLE CONCLUDED THAT NO LONG-TERM HAZARDS FROM LENSES WERE FOUND AND SHORT TERM EFFECTS WERE TRANSITORY.

TITLE: MAS - AEROMEDICAL STANAGS, AC/225(PANEL VII/ASP)N/46
DATA SOURCE NO: ADB109323
AUTHOR: G. ORTENZI
ORIGINATING ORG: PANEL VII ON NBC DEFENCE, NORTH ATLANTIC TREATY ORGANIZATION (NATO), BRUSSELS, BELGIUM
CLASSIFICATION: NATO RESTRICTED
DOCUMENT DATE: 86/03/11

COMMENTS: THREE AEROMEDICAL NORTH ATLANTIC TREATY ORGANIZATION (NATO) STANDARDIZATION AGREEMENTS (STANAG) ARE PRESENTED IN BOTH ENGLISH AND FRENCH TRANSLATIONS. THE STANAG TOPICS ARE: "THE MEASUREMENT OF PROTECTION PROVIDED TO THE RESPIRATORY TRACT AND EYES BY AIRCREW EQUIPMENT ASSEMBLIES AGAINST NBC (NUCLEAR, BIOLOGICAL AND CHEMICAL) AGENTS IN PARTICULATE, AEROSOL AND VAPOR FORM" (STANAG 3864); "PHYSIOLOGICAL REQUIREMENTS FOR AIRCREW NBC RESPIRATORS" (STANAG 3943); AND "MAXIMUM DOSAGE OF NERVE AGENT VAPOR TO THE EYES ACCEPTABLE FOR AIRCREW" (STANAG 3946).

TITLE: NAVAL BEACH GROUP AND NAVAL CONSTRUCTION FORCES NBC DECONTAMINATION EQUIPMENT AND PROCEDURES - PHASE I, CONCEPTS BASED ON EXISTING EQUIPMENT
DATA SOURCE NO: DTNSRDC/SME-86/02, ADB101751
AUTHOR: T.E. WENZEL, M. GREENBERG, S.M. FINGER, G.H. FIELDING
ORIGINATING ORG: DAVID W. TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER (DTNSRDC), BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: REPORT ON CURRENT DECONTAMINATION EQUIPMENT AND PROCEDURES USED BY NAVAL BEACH GROUPS AND NAVAL CONSTRUCTION FORCES IN THE EVENT OF CHEMICAL/BIOLOGICAL (CB) AGENT ATTACKS. SUPPLIES AVAILABLE ARE TYPICAL ARMY EQUIPMENT AND DECONTAMINATION EQUIPMENT. REPORT CONTAINS INTERESTING PROCEDURES SUCH AS DRIVING EQUIPMENT THROUGH THE SURF AND DONNING THE PROTECTIVE ENSEMBLE AFTER CHEMICAL ATTACK HAS BEEN CONFIRMED.

TITLE: EFFECT OF WEARING CHEMICAL PROTECTIVE CLOTHING IN THE HEAT ON SIGNAL DETECTION OVER THE VISUAL FIELD
DATA SOURCE NO: ADA164945
AUTHOR: J.L. KOBRICK, L.A. SLEEPER
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/02/01

COMMENTS: SENSITIVITY FOR DETECTION OF VISUAL SIGNALS DISTRIBUTED AT VARIOUS LOCATIONS THROUGHOUT THE VISUAL FIELD WAS STUDIED IN 16 MALE SUBJECTS DURING DEGREES OF AMBIENT HEAT EXPOSURE (91 F/61 PERCENT RH; 70 F/35 PERCENT RH; 55 F/35 PERCENT RH), IN COMBINATION WITH AND WITHOUT WEARING OF THE ARMY NBC PROTECTIVE CLOTHING SYSTEM (MOPP IV). RESPONSE TIME FOR SIGNAL DETECTION INCREASED SYSTEMATICALLY AND SIGNIFICANTLY WITH PERIPHERALIZATION OF STIMULUS LOCATIONS, WAS MOST IMPAIRED IN THE SUPERIOR AND INFERIOR VISUAL FIELD WAS, AND LEAST AFFECTED ALONG THE HORIZONTAL AXIS AREA. BOTH HEAT AND HEAT PLUS MOPP IV CONDITIONS PRODUCED HIGHLY SIGNIFICANT SYSTEMATIC INCREASES IN RESPONSE TIME TO ALL SIGNALS; THE WORST PERFORMANCE OCCURRED UNDER THE HEAT PLUS MOPP IV COMBINATION.

TITLE: SCENARIO DEVELOPMENT
AUTHOR: D.K. PACE
ORIGINATING ORG: APPLIED PHYSICS LABORATORY, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS PAPER (PRESENTED AT 1986 MILITARY OPERATIONAL RESEARCH SYMPOSIUM (MORS)) BRIEFLY PROPOSES SOME PRINCIPLES FOR SCENARIO DEVELOPMENT. IT DISCUSSES TOPICS INCLUDING: MANAGEMENT CONSIDERATIONS, ANALYSIS, STRUCTURE AND RESOURCES, PERSONNEL SELECTION, IMPLEMENTATION OF PROPER PROCEDURES, AND ADVANCEMENT OF PROFESSIONALISM IN SCENARIO DEVELOPMENT. THE BASIC OUTLINE FOR SCENARIO DEVELOPMENT IS: (1) UNDERSTAND AND DEFINE PROBLEM; (2) PLAN THE SCENARIO DEVELOPMENT PROCESS; (3) EXERCISE DISCIPLINE IN SCENARIO DEVELOPMENT; AND (4) ADEQUATE COMMUNICATIONS.

TITLE: DECONTAMINATION FRONT END ANALYSIS (DECON FEA)
AUTHOR: T.I. HIMMELHEBER, M.I. HUTTON, R.E. JABLONSKI, R.L. ZUM BRUNNEN
ORIGINATING ORG: CHEMICAL RESEARCH DEVELOPMENT, AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 86/06/01

COMMENTS: THIS STUDY (INITIATED IN 1983) WAS UNDERTAKEN TO PROVIDE CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) MANAGEMENT WITH INFORMATION UPON WHICH TO ESTABLISH PRIORITIES FOR PROGRAMS AND TO IDENTIFY AREAS WHICH BEST SATISFY OPERATIONAL NEEDS OF THE BATTLEFIELD. A VERY BRIEF SCENARIO IS PRESENTED, FOLLOWED BY ANALYSIS OF MAXIMUM WEATHERING TIMES TO REDUCE CONTAMINATION LEVELS BELOW HAZARD LEVELS. USING THIS AS A BASELINE, THEY PROCEEDED TO PRESENT THE TOTAL TIME (IN MINUTES) TO DECONTAMINATE UNITS AND THE TIME AFTER "EVENT" THAT

DECONTAMINATION CAN BEGIN. A NOTE IS MADE THAT IN MANY INSTANCES, VEHICLES WERE DECONTAMINATED WHEN IN FACT THEY HAD "WEATHERED CLEAN" OR HAD NOT BEEN CONTAMINATED. USE OF DETECTORS AS A DECONTAMINATION DISCRIMINATOR AS WELL AS USE OF M12 AND XM16 DECONTAMINATION APPARATUS IS RECOMMENDED TO REDUCE LOGISTICS AND TIME TO DECONTAMINATE. (PAPER PRESENTED AT 1986 MILITARY OPERATIONS RESEARCH SYMPOSIUM (MORS).)

TITLE: EVALUATION OF THE IMPACT OF MONITORING POST-ATTACK CHEMICAL WARFARE HAZARD ON NATO SORTIE GENERATION CAPABILITY
DATA SOURCE NO: FEL-1986-62
AUTHOR: H.J. GROOTENDORST
ORIGINATING ORG: NATIONAL DEFENCE RESEARCH ORGANIZATION (NDRE), THE NETHERLANDS ORGANIZATION (TNO), THE HAGUE, THE NETHERLANDS FOR JAYCOR, DAYTON, OH
CLASSIFICATION: NETHERLANDS RESTRICTED
DOCUMENT DATE: 86/12/01

COMMENTS: THIS REPORT CONTAINS THE RESULTS OF ANALYSIS PERFORMED WITH THE FEL-TNO AIRBASE MODEL. THE REPORT PROVIDES A BRIEF DESCRIPTION OF THE FEL-TNO AIRBASE MODEL, IDENTIFIES THE PARAMETERS CONSIDERED AND THE VALUES USED IN THE ANALYSIS AND PRESENTS THE RESULTS IN TERMS OF DAILY SORTIES GENERATED FOR A WIDE RANGE OF CASES.

TITLE: CASE HISTORY - PROTECTIVE CLOTHING
AUTHOR: R.N. MACNAIR
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/28

COMMENTS: BRIEFING MATERIALS FROM THE "WORKSHOP ON METHODOLOGY FOR TESTING OF FABRICS AND GARMENT MATERIALS WITH CHEMICAL AGENTS." COVERS THE HISTORY OF STANDARD PROTECTIVE CLOTHING; THE REQUIREMENTS (BREAKTHROUGH LEVEL, PROTECTION TIME, ETC.) FOR PAST AND RECENT CLOTHING; THE RESULTS OF TESTING (WEAR TIME; VAPOR AND LIQUID REQUIREMENTS; FIELD CONDITIONS (WET, DRY, STORAGE, CARRIAGE, FUEL SPOTS); AND FUTURE STANDARD PROTECTIVE CLOTHING. THE FUTURE CLOTHING SECTION INCLUDED THE REQUIREMENTS STATED BY THE AIR FORCE (USAF), NAVY (USN), AND ARMY (USA) (AGENT CHALLENGE, PROTECTION TIME, WEAR TIME, AND OTHER FACTORS).

TITLE: DEVELOPMENT TEST II (PQT-G), TROPIC ENVIRONMENTAL PHASE, OF AH-64 CHEMICAL BIOLOGICAL (CB) PROTECTIVE ASK
DATA SOURCE NO: USATTC-860301, ADB102800
AUTHOR: R.H. MCINTOSH, H.R. STILES, R.. . KESTNER
ORIGINATING ORG: US ARMY TROPIC TEST CENTER (USATTC), APO MIAMI, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS REPORT DISCUSSES THE TROPICAL (PANAMA) TEST OF THE AH-64 CHEMICAL/BIOLOGICAL (CB) WARFARE MASK (WITHOUT THE AH-64). THE BATTERIES PASSED THEIR TESTS, VISUAL ACUITY SCORES, HEARING TESTS, AND GOOD HUMAN FACTORS DATA ARE PRESENTED. THE AVERAGE TIME TO DON THE MASK, WITH INTEGRAL HOOD WAS 8.5 SECONDS. THE FILTERS POPPED OFF IN TWENTY PERCENT OF THE DONNING TRIALS. WITHOUT THE BLOWER UNIT, THE MASK COULD NOT BE WORN IN THE JUNGLE.

TITLE: CONCEPT EVALUATION PROGRAM TEST OF LIGHTWEIGHT DESERT CLOTHING AND EQUIPMENT
DATA SOURCE NO: USAIB PROJECT 3839, ADB107401
AUTHOR: K.J. DILLE, P.A. JOHNSON
ORIGINATING ORG: US ARMY INFANTRY BOARD (USAIB), FORT BENNING, GA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/11/01

COMMENTS: THIS TEST WAS CONDUCTED AT FORT BLISS, TEXAS, TO EXAMINE SELECTED ITEMS OF COMMERCIALLY AVAILABLE UNIFORMS AND EQUIPMENT FOR USE IN DESERT ENVIRONMENT. FUNCTIONAL PERFORMANCE DATA IS INCONCLUSIVE. THERE WERE NO SAFETY HAZARDS, COMPATIBILITY PROBLEMS, OR MAINTAINABILITY PROBLEMS IDENTIFIED DURING TESTING. EQUIPMENT INCLUDED FIVE TESTS, FIVE PONCHO-SIZE COVERS, TWO BOOTS, TWO HATS, FOUR UNIFORMS, AND ONE WATER CONTAINER.

TITLE: DRAFT FINAL REPORT, APPLICATION OF ARMY DETECTION CONCEPTS TO AIR BASE POST-ATTACK HAZARD MANAGEMENT
DATA SOURCE NO: TR-86-7000-EAI
ORIGINATING ORG: EAI CORPORATION, JOPPATOWN, MD FOR ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY, WRIGHT PATTERSON AFB
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/12/15

COMMENTS: THIS REPORT DESCRIBES AN EFFORT TO INTEGRATE APPROPRIATE US ARMY CONCEPTS OF CHEMICAL DETECTION, IDENTIFICATION AND WARNING (CDIW) INTO AIR BASE CHEMICAL POST-ATTACK HAZARD MANAGEMENT. AIR BASE INFORMATION REQUIREMENTS ARE DEFINED IN TERMS OF THE ARMY FIXED-SITE REQUIREMENTS AND MODIFIED TO ACCOMMODATE AIR FORCE OPERATIONS. THE INFORMATION REQUIREMENTS ARE COMPARED TO CURRENT AND NEAR-TERM (FIELDED

BY 1990) ARMY DETECTION SYSTEMS TO DETERMINE HOW WELL THOSE SYSTEMS MEET THE REQUIREMENTS. A GOOD SUMMARY DESCRIPTION OF THE DETECTORS IS PRESENTED.

TITLE: AIRFIELD DAMAGE REPAIR
DATA SOURCE NO: WES/MP/GL-86-2, ADB103198
AUTHOR: V.C. BARBER, H.L. GREEN, G.M. HAMMITT
ORIGINATING ORG: US ARMY ENGINEERING WATERWAYS EXPERIMENT STATION (WES), VICKSBURG, MS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/01/01

COMMENTS: THIS REPORT PROVIDES GENERAL BACKGROUND DATA ON AIRFIELD DAMAGE REPAIR, I.E., TO PROVIDE REPAIR OF CRATERS NECESSARY TO RESTORE THE AIRFIELD TO OPERATIONAL CAPABILITY. IT INCLUDES A DESCRIPTION OF THE RUNWAY (LENGTH, WIDTH, THICKNESS, TYPE OF PAVEMENT, AND CURRENT AIRCRAFT ASSIGNED) AT TWENTY AIRFIELDS IN ITALY, WEST GERMANY, SPAIN, AND SOUTH KOREA. REPAIR PROCEDURES/SOLUTIONS ARE DESCRIBED IN GENERALITIES. THE "RIGID PAVEMENT REPAIR SUMMARY" DISCUSSES THE INTERACTION OF THE FIVE REPAIR CREWS. CREW (OVERALL) STRENGTH IS LISTED AS THIRTY-FOUR. WITH EXTENSIVE CROSS-TRAINING, THIS "COULD CONCEIVABLY BE REDUCED TO A MINIMUM OF ABOUT TWENTY." REPORT INCLUDES A LISTING OF REQUIRED MILITARY AND CIVILIAN EQUIPMENT. APPENDIX B CONTAINS A SUMMARY OF HOST NATION TECHNIQUES FOR RUNWAY REPAIR. INCLUDES A BRIEF DESCRIPTION FOR TECHNIQUES USED BY WEST GERMANY, FRANCE, AND GREAT BRITAIN.

TITLE: THE CHARACTERISTICS OF THICKENED CHEMICAL WARFARE AGENTS - GD, VX AND THEIR PROTECTION
AUTHOR: L. WEIGANG
ORIGINATING ORG: RESEARCH INSTITUTE OF CHEMICAL DEFENCE, BEIJING, CHINA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT DISCUSSED THE FOLLOWING CHARACTERISTICS OF THICKENED SOMAN (TGD) AND THICKENED VX (TVX): THE EFFECT OF POLYMER CONCENTRATION AND TEMPERATURE ON VISCOSITY; STABILITY UNDER ARTIFICIAL ATMOSPHERE CONDITIONS; EVAPORATION; HYGROSCOPICITY AND HYDROLYSIS; DISSOLUTION IN AQUEOUS SOLUTION; AN THE EFFECT OF TEMPERATURE ON HYDROLYSIS RATE. REPORT ALSO DISCUSSED DECONTAMINATION AND PENETRATION PROPERTIES THROUGH FABRICS. SINCE BOTH TGD AND TVX ARE TRUE SOLUTIONS, THEY CAN BE STOCKPILED WITHOUT ANY STABILIZER FOR A LONG PERIOD OF TIME.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-243, ADB100122
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO REPORTS DEALING WITH SUCH TOPICS AS: CORROSION OF METALS AND RUBBER BY CHEMICALS; ADHESIVES; BIOTECHNOLOGY; DECONTAMINATION; PROPELLANTS; COATINGS AND PAINTS; TOXICITY; AND OTHERS. DOCUMENT ALSO HAS NEWS RELEASES AT THE END COVERING RELATED TOPICS.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-242, ADB100444
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/02/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY OF CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO REPORTS DEALING WITH SUCH TOPICS AS: CORROSION OF METALS AND RUBBER BY CHEMICALS; ADHESIVES; BIOTECHNOLOGY; DECONTAMINATION; PROPELLANTS; COATINGS AND PAINTS; TOXICITY AND OTHERS. CONTAINS NEWS RELEASES AT END ON RELATED TOPICS.

TITLE: INDEPENDENT EVALUATION REPORT FOR THE IMPROVED PAPER, CHEMICAL AGENT DETECTOR, M9E1
DATA SOURCE NO: ADB101244
AUTHOR: C.W. CHAN
ORIGINATING ORG: US ARMY TEST AND EVALUATION COMMAND, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS DOCUMENT DESCRIBED AN INDEPENDENT EVALUATION FOR PRODUCT IMPROVEMENT VERIFICATION TEST FOR THE CHEMICAL AGENT DETECTOR PAPER, M9E1, CONDUCTED BY US ARMY TEST AND EVALUATION COMMAND (TECOM). THE PRODUCT IMPROVEMENT PROGRAM (PIP) REPLACED THE DETECTION MEDIUM OF THE M9 PAPER B-1 DYE) WITH SOLVENT RED 119 DYE BECAUSE B-1 DYE IS MUTAGENIC AND POSSIBLY CARCINOGENIC. THE M9E1 PAPER RESPONDED SIMILARLY TO M9 PAPER WITH A SLIGHTLY REDUCED RESPONSE TIME. IT IS RECOMMENDED THAT THE PIP PROCEED INTO THE PRODUCTION PHASE.

TITLE: MILITARY MEDICINE LITERATURE SURVEY
DATA SOURCE NO: TDCK-G-364, ADB102923
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/05/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON MILITARY MEDICINE. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: TOXICOLOGY; PATHOLOGY; FATIGUE; EFFECTS OF HEAT; FIRST AID TREATMENT; HUMAN PERFORMANCE; INJURY TREATMENT; CHEMICAL WAR AGENTS POISONING; CHEMICAL WEAPONS CASUALTIES; CIVIL DEFENSE; NUCLEAR REACTOR ACCIDENTS; RADIOACTIVE CONTAMINATED FOOD,; DRINKING WATER; TRIAGE; WARTIME; AND VIRAL DISEASES. CONTAINS NEWS RELEASES AT END ON VARIOUS RELATED TOPICS.

TITLE: MILITARY MEDICINE LITERATURE SURVEY
DATA SOURCE NO: TDCK-G-363, ADB102927
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON MILITARY MEDICINE. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: WOUNDS AND INJURIES; URINALYSIS; TOXINS; TOXICOLOGY PROPERTIES OF MATERIALS; SHIPBOARD MEDICINE; SAFETY; RADIATION TOLERANCE: PILOTS; PHARMACOLOGICAL EFFECTS; NUCLEAR REACTOR ACCIDENTS; MILITARY TRAINING; MILITARY MEDICINE; INJURY TREATMENT; HELICOPTER PILOTS; BATTLE INJURIES; AND ACCIDENT INVESTIGATION. CONTAINS NEWS RELEASES AT END ON VARIOUS RELATED TOPICS.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-244, ADB102928
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: BIOLOGICAL WARFARE (BW); CBR (CHEMICAL, BIOLOGICAL, RADIOLOGICAL) WARFARE; CBR PROTECTIVE CLOTHING; CHEMICAL WARFARE (CW): CHEMICAL WARFARE PROTECTION; CORROSION; EXPLOSIVES DETONATION; FLIGHT CLOTHING; GAS DECONTAMINATION; MATHEMATICAL MODELS;

TOXICOLOGY PROPERTIES OF MATERIALS; AND YELLOW RAIN. CONTAINS NEWS RELEASES AT END ON VARIOUS RELATED TOPICS.

TITLE: FIRST PARTIAL REPORT FOR CONCEPT EVALUATION OF THE SURROGATE RECONNAISSANCE SYSTEM FOR NUCLEAR, BIOLOGICAL, AND CHEMICAL WARFARE (SRS NBC), PHASE I
DATA SOURCE NO: 5-CEP-250, ADB103303
AUTHOR: B.P. PRESCOTT, C.D. WEYRAUCH, T.J. PERRIN, R.L. MOORE
ORIGINATING ORG: US ARMY ARMOR AND ENGINEERING BOARD, FORT KNOX, KY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THE SURROGATE RECONNAISSANCE SYSTEM (SRS) IS BEING DEVELOPED IN RESPONSE TO THE NEED FOR AN INCREASED NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) RECONNAISSANCE CAPABILITY OVER THAT AFFORDED BY CURRENT EQUIPMENT. THE PURPOSE OF THIS STUDY IS TO REDUCE PROGRAM RISKS BY DETERMINING THE DEFICIENCIES OF CURRENT EQUIPMENT. THE STUDY DISCOVERED SEVERAL AREAS NEEDING IMPROVEMENT; MOST RELATING TO ADAPTING THE CHEMICAL DETECTION EQUIPMENT TO THE RECONNAISSANCE VEHICLE. CHEMICAL DETECTION EQUIPMENT INCLUDE THE GERMAN ENGINEERED MASS SPECTROMETER (GEMS), THE XM21 REMOTE SENSING CHEMICAL AGENT ALARM (RSCAAL), AND THE CHEMICAL AGENT MONITOR (CAM).

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-246, ADB104113
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: BIOCHEMISTRY; CBR (CHEMICAL, BIOLOGICAL, RADIOLOGICAL) WARFARE; CHEMICAL WARFARE (CW); COMPUTERIZED SIMULATION; CORROSION; GAS DETECTION; MUSTARD (HD) GAS; SOMAN (GD); SOMAN POISONING; TOXICOLOGY PROPERTIES OF MATERIALS; AND TOXINS. CONTAINS NEWS RELEASES AT END ON VARIOUS RELATED TOPICS.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-247, ADB104809
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/07/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: CBR (CHEMICAL, BIOLOGICAL, RADIOLOGICAL) WARFARE; CHEMICAL PRETREATMENT; CHEMICAL WARFARE (CW) AGENTS POISONING; CHEMICAL WARFARE; CORROSION; GAS DETECTION; MUSTARD (HD) GAS POISONING; PESTICIDES; SOMAN (GD) POISONING; AND VULNERABILITY. CONTAINS NEW RELEASES AT END ON VARIOUS RELATED TOPICS.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY,
DATA SOURCE NO: TDCK-CT-248, ADB104962
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: BIOLOGICAL WEAPONS; CHEMICAL REACTIONS; CHEMICAL WARFARE (CW); CORROSION; DECONTAMINATION; GAS DECONTAMINATION; MYCOTOXINS; PROTECTIVE CLOTHING; AND WAR GASES. CONTAINS NEWS RELEASES AT END COVERING VARIOUS RELATED TOPICS.

TITLE: INDEPENDENT EVALUATION REPORT (IER) FOR THE DECONTAMINATION AND OBSCURATION SYSTEM (DOS)
DATA SOURCE NO: T114A, ADB105111
AUTHOR: C.M. ROSS
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/11

COMMENTS: THIS REPORT EVALUATES THE DECONTAMINATION AND OBSCURATION SYSTEM (DOS) TEST (T114A) CONDUCTED AT FORT LEWIS, WA, AND AT YAKIMA FIRING CENTER, YAKIMA, WA, BY THE COMBAT DEVELOPMENTS EXPERIMENTATION CENTER BOARD (CDEC BD). THE PURPOSE OF THE TEST WAS TO OBTAIN DATA ON FOUR DIFFERENT DUAL PURPOSE SMOKE GENERATORS/DECONTAMINATION SYSTEMS AS CANDIDATE DUAL PURPOSE EQUIPMENT FOR THE US ARMY AS COMPARED TO THE BASELINE M3A3 OBSCURATION SYSTEM AND THE M-17 SANATOR. REPORT DOES NOT DESCRIBE WHAT THESE FOUR NEW SYSTEMS ARE. LIMITED SMOKE PRODUCTION AND DECONTAMINATION EFFECTIVENESS DATA ARE PROVIDED (MOSTLY IN FUEL AND WATER CONSUMPTION RATES).

TITLE: TECHNICAL FEASIBILITY TEST (TFT) PHASE II, INTERNATIONAL MATERIAL EVALUATION (IME) OF MULTIPURPOSE RAIN/SNOW/CB OVERBOOT (MULO)
DATA SOURCE NO: 8-EI-495-MPO-006, ADB105344
AUTHOR: R.C. DECKER, C. LYLE
ORIGINATING ORG: US ARMY AVIATION DEVELOPMENT TEST ACTIVITY, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS DOCUMENT CONTAINED THE COMPARISON OF THE CANADIAN, GERMAN, AND AMERICAN CANDIDATES FOR USE OF THE MULTIPURPOSE RAIN/SNOW/CB (CHEMICAL, BIOLOGICAL) OVERBOOT (MULO) IN AN AVIATION ENVIRONMENT. THE AREAS OF DIFFICULTY EXPERIENCED WITH THE AMERICAN CANDIDATE WERE AIRCRAFT COMPATIBILITY, EASE OF DOFFING, AND SKIN ABRASIONS (SHARP EDGES) IN AIRCREW MEMBERS. THE AREAS OF DIFFICULTY EXPERIENCED WITH THE GERMAN CANDIDATE WERE DOFFING AND CHAFING. NO PROBLEMS WERE FOUND WITH THE CANADIAN CANDIDATE.

TITLE: INNOVATIVE TEST ON THE USE OF THE DIGITAL NON-SECURE VOICE TERMINALS, TA-954(V)1/TT WITH AND WITHOUT MOPP GEAR
DATA SOURCE NO: TRADOC-TRMS-86150022, ADB106405
AUTHOR: H.E. PETERSON
ORIGINATING ORG: US ARMY COMMUNICATIONS-ELECTRONICS BOARD, FORT GORDON, GA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: AN EXPERIMENT WAS DESIGNED TO DETERMINE IF THE DIALING ACCURACY OF THE DIGITAL NON-SECURE VOICE TERMINAL TA-954(V)1/TT (A TELEPHONE) IS DEGRADED WHEN WEARING MILITARY ORIENTED PROTECTIVE POSTURE (MOPP) GLOVES OR COLD WEATHER GLOVES. TWO DIFFERENT MODES WERE TESTED: STATIC, THE DEVICE DIALED WHILE THE PARTICIPANT IS SEATED AT A DESK; AND MOBILE, THE DEVICE IS MOUNTED ON THE DASHBOARD OF A VEHICLE. THE THICKNESS OF THE GLOVES MADE IT NECESSARY TO USE THE ALTERNATIVE METHOD OF USING A PENCIL TO PUNCH THE DIGITS. THE TEST REQUIRED ACCURACY TO BE MORE IMPORTANT THAN SPEED AND THE ENVIRONMENT WOULD CARRY NO EFFECT. THE DIFFERENCE CAUSED BY THE GLOVES WAS THE MAJOR FOCUS OF THE TEST. RESULTS AND ANALYSIS ARE INCLUDED.

TITLE: PROPONENT EVALUATION REPORT OF THE CONCEPT EVALUATION OF THE NUCLEAR, BIOLOGICAL, AND CHEMICAL RECONNAISSANCE SYSTEM (NBCRS)
DATA SOURCE NO: 6-CEP-304, ADB106426
AUTHOR: J.L. GROSS
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THE PURPOSE OF THIS STUDY IS TO EVALUATE TWO NUCLEAR, BIOLOGICAL, AND CHEMICAL RECONNAISSANCE SYSTEMS (NBCRS) AND TO GATHER DATA TO BETTER DEFINE/REFINE SYSTEM REQUIREMENTS. ISSUES TESTED INCLUDED OPERATOR AND MAINTENANCE TRAINING, HARDWARE RELIABILITY, MISSION PERFORMANCE, MANUALS, LOGISTICAL SUPPORT, HUMAN FACTORS ENGINEERING, AND SAFETY. SEVERAL RECOMMENDATIONS ARE PROVIDED FOR ENHANCING THE TRAINING PROGRAMS. DETAILED RESULTS ARE PROVIDED.

TITLE: TECHNICAL FEASIBILITY TEST (TFT) OF CANADIAN GERMAN AND AMERICAN CANDIDATES FOR THE MULTIPURPOSE RAIN/SNOW/CB OVERBOOT (MULO)
DATA SOURCE NO: USCSTA-6398, ADB106891
AUTHOR: R. CARTER
ORIGINATING ORG: US ARMY COMBAT SYSTEMS TEST ACTIVITY, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/07/01

COMMENTS: THIS DOCUMENT CONTAINED THE TECHNICAL FEASIBILITY TEST FOR THE CANADIAN, GERMAN, AND AMERICAN CANDIDATES FOR THE MULTIPURPOSE RAIN/SNOW/CB (CHEMICAL, BIOLOGICAL) OVERBOOT (MULO). THEY DID NOT TEST THE MULOS IN SNOW AS PLANNED, BUT THEY WERE TESTED IN MUD/WATER. ALL OF THE CANDIDATES WERE FOUND TO PROVIDE ADEQUATE PROTECTION FROM THESE TWO ENVIRONMENT ELEMENTS. THE TWO SHORTCOMINGS OF THE MULOS WERE: THEY WERE NOT FLAME RESISTANT; AND THEY DO NOT PROVIDE FOR FIELD REPAIR OF SMALL CUTS/HOLES. THE CANADIAN MULO WAS FOUND TO BE SUPERIOR BECAUSE OF HIGHER TROOP ACCEPTABILITY, LONGER DURABILITY, AND QUICKER DONNING AND DOFFING.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-250, ADB107366
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/10/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: ANTIDOTES; BIOLOGICAL WARFARE (BW); BIOLOGICAL WEAPONS; CBR (CHEMICAL, BIOLOGICAL, RADIOLOGICAL) WARFARE; CORROSION; DECONTAMINATION; NERVE GAS POISONING; SIMULATORS; AND SOMAN (GD) POISONING. CONTAINS NEWS RELEASES AT END ON VARIOUS RELATED TOPICS.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-249, ADB107739
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON CHEMICAL TECHNOLOGY. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: ANTIDOTE; CBR (CHEMICAL, BIOLOGICAL, RADIOLOGICAL) WARFARE; CHEMICAL WAR AGENTS POISONING; CHEMICAL WARFARE (CW); CHEMICAL WARHEAD; NUCLEAR EXPLOSIONS; AND POISONING TREATMENT. CONTAINS NEWS RELEASES AT END COVERING RELATED TOPICS.

TITLE: FRONT END ANALYSIS OF COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE SHELTERS FOR THE HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE AND THE COMMERCIAL UTILITY CARGO VEHICLE
DATA SOURCE NO: NATICK/TR-86/069L, ADB107970
AUTHOR: J.M. WALKER
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS FRONT END ANALYSIS IDENTIFIES THE REQUIREMENTS AND PRELIMINARY DESIGN CONCEPTS FOR THE ARMY DEVELOPMENTAL MOBILE SHELTERS. THE SHELTERS ARE NEEDED TO TRANSPORT COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE (C3I) SYSTEMS ON THE ARMY'S NEW 5/4-TON VEHICLES, THE HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE (HMMWV) AND THE COMMERCIAL UTILITY CARGO VEHICLE (CUCV). BOTH SHELTERS WILL PROVIDE PROTECTION FROM ELECTROMAGNETIC INTERFERENCE, ELECTROMAGNETIC PULSE (EMP) AND CHEMICAL/BIOLOGICAL AGENTS. IN ADDITION, ONE OF THE SHELTERS WILL BE HARDENED AGAINST NUCLEAR BLAST, THERMAL PULSE, AND BALLISTICS THREATS. THE REPORT PRESENTS DESCRIPTIONS OF FISCAL YEAR 1985 (FY85) SHELTER CONCEPTS AND PROTOTYPES DESIGNED BY THE ARMY, OTHER DEPARTMENT OF DEFENSE (DOD) AGENCIES, AND PRIVATE CONTRACTORS TO SATISFY THE NEED FOR SMALL MOBILE SHELTERS.

TITLE: MILITARY MEDICINE LITERATURE SURVEY
DATA SOURCE NO: TDCK-G-368, ADB108546
ORIGINATING ORG: WETENSCHAPPELIJK EN TECHNISCH DOCUMENTATIE-EN INFORMATIECENTRUM, VOOR DE KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: THIS REPORT IS THE RESULTS OF A LITERATURE SURVEY ON MILITARY MEDICINE. IT CONTAINS REFERENCES (MANY OF WHICH ARE IN DUTCH) TO DOCUMENTS ON THE TOPICS OF: BATTLE INJURIES; CASUALTIES; CBR (CHEMICAL, BIOLOGICAL, RADIOLOGICAL) PROTECTIVE CLOTHING; CHEMICAL WARFARE (CW) AGENTS DETECTION; CHEMICAL WARFARE PROTECTION; HUMAN PERFORMANCE; INJURY TREATMENT; MUSTARD (HD) GAS POISONING; NUCLEAR EXPLOSIONS; NUCLEAR REACTOR ACCIDENTS; NUCLEAR WEAPONS CASUALTIES; RADIOACTIVITY DECONTAMINATION; RADIATION TOLERANCE; RADIATION SICKNESS; TOXICOLOGY PROPERTIES OF MATERIALS: AND WARFARE. CONTAINS NEWS RELEASES AT END ON RELATED TOPICS.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION, FINAL REPORT, VOLUME I, PURPOSE AND DESCRIPTION
DATA SOURCE NO: YQ-DR-86-1, ADC954108
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, CHURCH FALLS, VA FOR AIR BASE SURVIVABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: A DEMONSTRATION OF AIR BASE SURVIVABILITY (ABS) INITIATIVES WAS CONDUCTED BY THE US AIR FORCE (USAF) AT SPANGDAHLEM AIR BASE (AB), WEST GERMANY FROM 29 APRIL TO 17 MAY 1985. THE PURPOSE OF THIS DEMONSTRATION (SALTY DEMO) WAS TO COLLECT DETAILED DATA ON THE CAPABILITIES OF OUR AIR BASES TO SURVIVE AIR AND GROUND ATTACKS AND RECOVER TO GENERATE SORTIES. DEMONSTRATED SURVIVABILITY ENHANCEMENTS INCLUDE IMPROVED ACTIVE DEFENSE CAPABILITY FOR AIR DEFENSE ARTILLERY (ADA), TACTICAL COUNTER-INTELLIGENCE (TCI), AIR BASE GROUND DEFENSE (ABGD), AND PASSIVE DEFENSE MEASURES SUCH AS FACILITY HARDENING; NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) PROTECTION SYSTEMS; AND CAMOUFLAGE, CONCEALMENT AND DECEPTION (CCD) TECHNIQUES. SYSTEMS PROMISING INCREASED RECOVERY CAPABILITIES SUCH AS RAPID UTILITY REPAIRS, EXPLOSIVE ORDNANCE DISPOSAL (EOD) AND RAPID RUNWAY REPAIR (RRR) WERE EXTENSIVELY EXERCISED. REDUNDANCY OF CRITICAL SYSTEMS AND OPERATIONS WERE MEASURED. A SALTY DEMO DATA BASE AND AN AUDIO-VISUAL LIBRARY WERE ESTABLISHED.

TITLE: INCIDENCE OF SKIN BURNS UNDER CONTEMPORARY ARMY UNIFORMS EXPOSED TO THERMAL RADIATION FROM SIMULATED NUCLEAR FIREBALLS
DATA SOURCE NO: HDL-TR-2084, ADB107420
AUTHOR: A.J. BABA, S. SHARE, B.R. SCHALLHORN, S.M. GASPAR
ORIGINATING ORG: HARRY DIAMOND LABORATORIES (HDL), ADELPHI, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/09/01

COMMENTS: SKIN SIMULANTS WERE USED TO OBTAIN THE INDUCED TEMPERATURE RISE IN SKIN. INCIDENCE OF SECOND DEGREE BURNS WERE DETERMINED FROM THE SKIN-TEMPERATURE RISE-DATA. INCIDENCE OF FIRST DEGREE

BURNS WERE DETERMINED FROM THE RELATIONSHIPS BETWEEN FIRST AND SECOND DEGREE BURNS. THE THERMAL FLUENCE VALUES REQUIRED TO PRODUCE A FIFTY PERCENT INCIDENCE OF SECOND DEGREE SKIN BURNS WERE FOUND TO BE 7.4, 10 AND 31 CALORIES PER SQUARE CENTIMETERS (CAL/CM2) RESPECTIVELY, FOR SKIN COVERED WITH A BATTLE DRESS UNIFORM (BDU) AND T-SHIRT, BATTLE DRESS OVERGARMENT (BDO), AND BDO ON TOP OF BDU AND T-SHIRT. WHEN AN 0.125 INCH AIRSPACE BETWEEN FABRIC LAYERS WAS ADDED, THESE VALUES INCREASED TO 15, 16, AND 48 CAL/CM2. NONE OF THESE VALUES SHOWED ANY SIGNIFICANT VARIATION WITH EQUIVALENT WEAPON YIELDS OVER THE RANGE FROM TEN TO THREE-HUNDRED KILOTONS.

TITLE: MEDICAL PROTECTION AGAINST NERVE GAS POISONING PAST, PRESENT AND FUTURE TREND, A CRITICAL APPRAISAL
AUTHOR: Z. BINENFELD
ORIGINATING ORG: LABORATORY OF ORGANIC CHEMISTRY AND BIOCHEMISTRY, UNIVERSITY OF ZAGREB, STROSSMAYEROV, YUGOSLAVIA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT PRESENTS A GENERAL OVERVIEW OF THE CURRENT ABILITIES AND FUTURE RESEARCH INTERESTS IN THE USE OF ANTIDOTES FOR PROTECTION AGAINST NERVE AGENT POISONING. IT INCLUDES A BRIEF OVERVIEW OF THE EFFECTIVENESS OF VARIOUS TREATMENTS FOR NERVE GAS POISONING. GRAPHS ARE PRESENTED ILLUSTRATING THE EFFECTS OF OXIMES IN VIVO IN POISONED MICE AND IN VITRO ON HUMAN ERTHROCYTE ACETYLCHOLINESTERASE (ACHE). REPORT DOES NOT CONTAIN ANY DETAILED INFORMATION, BUT DOES CONTAIN A GOOD LIST OF REFERENCES.

TITLE: THE PROTECTION AND TREATMENT OF CIVILIAN POPULATIONS AGAINST CHEMICAL WARFARE
AUTHOR: J. ADLER
ORIGINATING ORG: CIVIL DEFENCE, ISRAEL
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/06/01

COMMENTS: THIS REPORT GIVES A BRIEF HISTORY OF THE USE OF CHEMICAL WARFARE (CW) AGENTS. AUTHOR PRESENT THE VIEW THAT ANY COUNTRY, THREATENED BY A POSSIBLE CHEMICAL WARFARE ATTACK OR BY A CHEMICAL INDUSTRIAL DISASTER, SHOULD ESTABLISH A SYSTEM TO PREVENT OR MITIGATE THE EFFECTS OF SUCH AN EVENT. THE BEST DETERRENT AGAINST THE USE OF THESE LETHAL WEAPONS WOULD BE A FULLY PROTECTED AND PREPARED POPULATION. MOBILE INTERVENTION FORCES, FULLY PROTECTED, SHOULD BE ESTABLISHED AND TRAINED TO TREAT VICTIMS IN CONTAMINATED AREAS AND THEN TRANSPORT THEM TO MEDICAL FACILITIES FOR DEFINITIVE TREATMENT. ALL HOSPITALS SHOULD BE ORGANIZED, STAFFED, EQUIPPED, AND TRAINED IN THE PROCEDURES NECESSARY TO RECEIVE, SORT, AND TREAT LARGE NUMBERS OF CHEMICAL WARFARE VICTIMS.

TITLE: BEHAVIOR OF SMOKES AND AGENTS DURING VARIABLE METEOROLOGICAL CONDITIONS OVER COMPLEX TERRAIN
DATA SOURCE NO: ARO-19630.8-GS, ADA175410
AUTHOR: F.L. LUDWIG
ORIGINATING ORG: SRI INTERNATIONAL, MENLO PARK, CA FOR US ARMY RESEARCH OFFICE (ARO), RESEARCH TRIANGLE PARK, NC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/09/01

COMMENTS: THE OBJECTIVE OF THIS WORK WAS TO DEVELOP A SYSTEM OF MODELS FOR DESCRIBING THE TRANSPORT AND DIFFUSION OF SMOKES AND AGENTS OVER COMPLEX TERRAIN UNDER VARYING METEOROLOGICAL CONDITIONS. THIS DOCUMENT PRESENTS A WIND MODEL FOR DESCRIBING THREE-DIMENSIONAL AIRFLOW OVER COMPLEX TERRAIN AND A DETERMINISTIC MODEL FOR SIMULATING TRANSPORT AND DIFFUSION UNDER VARYING CONDITIONS. FORTRAN SOURCE CODE FOR THE WIND MODEL IS INCLUDED IN AN APPENDIX. A REVIEW OF RECENT DEVELOPMENTS IN THE MATHEMATICAL DESCRIPTION OF ATMOSPHERIC PROCESSES IS INCLUDED IN ANOTHER APPENDIX. CONTAINS VERY LITTLE DATA, BUT A LOT OF REFERENCES.

TITLE: NEUROCHEMICAL ALTERATIONS IN SPECIFIC TARGET SITES IN THE CENTRAL AND AUTONOMIC NERVOUS SYSTEMS AFTER EXPOSURE TO NERVE AGENTS
DATA SOURCE NO: ADA185814
AUTHOR: F.C. KAUFFMAN
ORIGINATING ORG: UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, BALTIMORE, MD FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/04/30

COMMENTS: THE NEUROTOXIC ACTIONS OF ORGANOPHOSPHATES INVOLVES A BROAD RANGE OF CELLULAR AND MOLECULAR ACTIONS IN ADDITION TO THEIR WELL ESTABLISHED EFFECTS ON ACETYLCHOLINESTERASE (ACHE). IN STUDIES OF THE EFFECTS OF SOMAN (GD) ON CEREBRAL ENERGY METABOLISM IN MICE, IT WAS FOUND THAT GD PRODUCED UNEXPECTED INCREASES IN PHOSPHOCREATINE, CITRATE, AND GLUTAMATE IN SEVERAL BRAIN AREAS SUGGESTING AN ACTION ON OXIDATIVE METABOLISM IN MAMMALIAN BRAIN. A MAJOR GOAL OF RESEARCH IN THIS REPORT IS TO DETERMINE THE SPECIFICITY OF THIS ACTION AND TO EXPLORE THE RELATIONSHIPS OF THESE EFFECTS TO THE NEUROTOXICITY OF ORGANOPHOSPHATES. SINCE ALTERATION IN CHOLINERGIC FUNCTION IS A MAJOR ACTION OF ORGANOPHOSPHATES, STUDIES OF ENERGY METABOLISM AND NEURITE OUTGROWTH WILL INCLUDE INVESTIGATIONS OF THE EFFECT OF THE VARIOUS TEST AGENTS ON CHOLINESTERASE AND CHOLINERGIC RECEPTOR FUNCTION. COMPARATIVE STUDIES OF THIS NATURE ARE NECESSARY TO DELINEATE EFFECTS THAT MAY OCCUR INDEPENDENTLY OF THE WELL ESTABLISHED ACTIONS ON ACETYLCHOLINESTERASE. PARTICULAR ATTENTION IS DIRECTED AT EXAMINING ALTERATIONS IN MUSCARINIC RECEPTOR FUNCTION.

TITLE: OPERATIONAL TEST II (OTII) OF THE AH-64 AIRCREW PROTECTIVE MASK (XM-43)
DATA SOURCE NO: OTN-1085, ADB101567
AUTHOR: D.E. BOYKEN, C.E. ADAMS, R. STRANGE, J.K. CONNEWAY, T.L. LIKELY
ORIGINATING ORG: US ARMY AVIATION BOARD, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/14

COMMENTS: THE PURPOSE OF THIS TEST WAS TO ASSESS THE OPERATIONAL EFFECTIVENESS OF THE AH-64 AIRCREW PROTECTIVE MASK (XM-43) AND ITS COMPATIBILITY WITH THE SUB-SYSTEMS ON THE AH-64 AIRCRAFT. SIX SUB-TESTS WERE CONDUCTED: WITH ANVIS-6; HUMAN FACTORS; TRAINING; RELIABILITY; AVAILABILITY; AND MAINTAINABILITY (RAM). THE XM-43 WAS FOUND ADEQUATE FOR MISSION PERFORMANCE, COMMUNICATIONS, AND COMPATIBILITY. IT IS NOT COMPATIBLE WITH CURRENTLY FIELDED BODY ARMOR. EXTENSIVE SURVEY AND QUESTIONNAIRE RESULTS ARE PRESENTED WITH DESCRIPTION OF TEST PROCEDURES.

TITLE: CHEMICAL ASSESSMENT AND DATA STUDY (CAMAD),
DATA SOURCE NO: CAA-TP-86-1, ADB102611
AUTHOR: G. MILLER, T. HOLLEY, G. BAUMERT, R. HELMBOLD
ORIGINATING ORG: US ARMY CONCEPTS ANALYSIS AGENCY (CAA), BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/03/01

COMMENTS: THIS REPORT PROVIDES AN ANALYSIS OF THE CONCEPTS ANALYSIS AGENCY (CAA) FUTURE REQUIREMENTS FOR CHEMICAL WARFARE (CW) MODELING CAPABILITY AND AN OUTLINE FOR ACHIEVING THIS CAPABILITY. IN ADDITION, EIGHT MODELS AND THEIR DEVELOPMENT REQUIREMENTS ARE IDENTIFIED. ALL MODELS INCLUDE A REQUIREMENT FOR CHEMICAL WARFARE CONSIDERATIONS. MODELS INCLUDE: INTEGRATED WARFARE FORCE EVALUATION MODEL; FORCE ANALYSIS SIMULATION OF THEATER ADMINISTRATIVE AND LOGISTIC SUPPORT; WARTIME FUEL FACTORS MODEL; FORCE DESIGN MODEL; ANALYSIS OF FORCE POTENTIAL; CHEMCAS; VECTOR-IN-COMMANDER; AND RESOURCE CONSTRAINED PROCUREMENT OF MUNITIONS. REPORT INCLUDES A SECTION ON SOURCES OF CHEMICAL WARFARE CASUALTY DATA.

TITLE: CONCEPT EVALUATION PROGRAM (CEP) FOR THE NUCLEAR , BIOLOGICAL, AND CHEMICAL RECONNAISSANCE SYSTEMS (NBCRS)
DATA SOURCE NO: 6-CEP-304, ADB104412
AUTHOR: B.F. PRESCOTT, C.D. WEYRAUCH
ORIGINATING ORG: US ARMY ARMOR AND ENGINEER BOARD, FORT KNOX, KY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/01

COMMENTS: TWO NUCLEAR, BIOLOGICAL AND CHEMICAL RECONNAISSANCE SYSTEMS (NBCRS) WERE TESTED: THE GERMAN BUNDESWEHR SPUERPANZER "FUCHS" (NBCRS WHEELED) AND THE US NBCRS (NBCRS TRACKED). BOTH ARE EQUIPPED WITH THE GERMAN MASS SPECTROMETER (GEMS) TO IDENTIFY AND QUANTIFY CHEMICAL CONTAMINATION. THE SYSTEMS WERE TESTED WITH CHEMICAL SIMULANTS METHYL SALICYLATE (MS) AND POLYETHYLENE GLYCOL 200 (PEG 200). RADIATION WAS SIMULATED ELECTRICALLY OR MANUALLY. BIOLOGICAL CONTAMINATION WAS NOT SIMULATED. THE EVALUATION PROGRAM TESTS INCLUDED: DETECTION CAPABILITY; DATA PROCESSING;COMMUNICATIONS; THE ABILITY TO PROVIDE METEOROLOGICAL DATA; AND RELIABILITY, AVAILABILITY AND MAINTAINABILITY (RAM). BOTH NBCRS SYSTEMS SUCCESSFULLY DETECTED, IDENTIFIED, AND QUANTIFIED SIMULATED CHEMICAL AND RADIOLOGICAL CONTAMINATION AND CLEARLY DEMONSTRATED A DRAMATIC IMPROVEMENT OVER CURRENT MANUAL METHODS IN PROVIDING REAL TIME NBC RECONNAISSANCE. RECOMMENDATIONS ARE MADE FOR BOTH SYSTEMS TO IMPROVE THEIR OPERATIONAL CAPABILITIES.

TITLE: CUSTOMER TEST FOR XM-43 PROTECTIVE MASK COMPATIBILITY ASSESSMENT IN OH-58/UH-60 AIRFRAMES
DATA SOURCE NO: TRADOC-TRMS-86-0000720, ADB105334
AUTHOR: J.E. NOWICKI, C.E. ADAMS, T.E. FOSTER, R.J. WILLIAMSON, T.L. LIKELY
ORIGINATING ORG: US ARMY AVIATION BOARD, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/24

COMMENTS: THIS REPORT SUMMARIZES COCKPIT COMPATIBILITY OF THE XM-43 PROTECTIVE MASK WITH THE OH-58/UH-60 AIRFRAMES USING THE SPH-4 HELMET, MISSION ORIENTED PROTECTIVE POSTURE LEVEL FOUR (MOPP 4), AND THE AVIATION LIFE SUPPORT EQUIPMENT (ALSE) ENSEMBLE. THE TEST ISSUE WAS TO EVALUATE OH-58/UH-50 CREW PERFORMANCE OF OPERATIONAL ENVIRONMENT. AREAS OF INTEREST ARE: AIRCRAFT CONTROL; COMMUNICATIONS; BINOCULARS; NIGHT-VISION GOGGLES (NVG), EXTENDED WEAR; SPH-4 HELMET; AND ALSE EQUIPMENT FOR CREW PERFORMANCE COMPATIBILITY. PILOT EVALUATION RESULTS INDICATE THAT NO DEGRADATION OF PERFORMANCE AND SUBSYSTEM OPERATION WAS FOUND THAT WOULD CAUSE MISSION ABORTION.

TITLE: CAREER MANAGEMENT FIELD 54 TRAINING EFFECTIVENESS ANALYSIS (CMF 54 TEA)
DATA SOURCE NO: TRAC-WSMR-TLA-13-86, ADB106357
AUTHOR: E. GEORGE, K. NAU, D. COMBS, G. DAVIS
ORIGINATING ORG: US ARMY TRANING AND DOCTRINE COMMAND ANALYSIS CENTER, WHITE SANDS MISSILE RANGE, NM
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS STUDY WAS CONDUCTED TO DETERMINE THE TRAINING AND PERFORMANCE EFFECTIVENESS OF CAREER MANAGEMENT FIELD 54 (NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC)) ENLISTED PERSONNEL ASSIGNED TO UNITS INSIDE THE CONTINENTAL UNITED STATES (CONUS) AND WEST GERMANY. DURING THE STUDY, 1273 SOLDIERS AND 42 SUPERVISORS WERE INTERVIEWED. DATA ANALYSES INDICATED THAT CAREER MANAGEMENT FIELD 54 SOLDIERS DO NOT DEMONSTRATE JOB PROFICIENCY. ADDITIONALLY, THE MAJORITY ARE NOT PERFORMING CHEMICAL DUTIES REGULARLY. ACCORDING TO RESULTS FROM INTERVIEWS WITH SOLDIER IN SPECIALTY 54E (SMOKE OPERATIONS SPECIALIST), SCHOOL TRAINING IS ADEQUATE, BUT THERE IS INSUFFICIENT EMPHASIS ON UNIT TRAINING AND LACK OF UNIT SUPPORT FOR NBC TRAINING. SOLDIERS AND SUPERVISORS STATE THAT NON-CHEMICAL SOLDIERS ARE INSUFFICIENTLY PREPARED TO EITHER SURVIVE AN NBC ATTACK OR TO CONDUCT THE MISSION AFTER AN ATTACK.

TITLE: DEVELOPMENT TEST II (PQT-G) OF AIRCREW UNIFORM INTEGRATED BATTLEFIELD (AUIB)
DATA SOURCE NO: ADB106863
ORIGINATING ORG: US ARMY YUMA PROVING GROUND (YPG), YUMA, AZ
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS REPORT PRESENTS RESULTS FROM A DEVELOPMENT TEST PERFORMED ON THE AIRCREW UNIFORM, BATTLEFIELD INTEGRATED (AUIB). THE AUIB IS DESIGNED TO REPLACE THE USE OF THE BATTLEDRESS OVERGARMENT (BDO) OVER THE STANDARD FLIGHT SUIT WORN BY ARMY AVIATORS. THIS TEST WAS DESIGNED TO EVALUATE THE AUIB UNDER DESERT CONDITIONS. IT WAS CONCLUDED THAT THE AUIB DID NOT POSE ANY SAFETY PROBLEMS EXCEPT FOR PRECAUTIONS NECESSARY TO AVOID HEAT STRESS. THE UNIFORM MET TWELVE OF FIFTEEN TEST CRITERIA. RECOMMENDED CHANGES ARE PROVIDED.

TITLE: NUCLEAR, BIOLOGICAL, AND CHEMICAL CONTAMINATION SURVIVABILITY METHODOLOGY: A MANUAL FOR EQUIPMENT DEVELOPMENT CONTRACTORS AND GOVERNMENT COMBAT AND MATERIEL DEVELOPERS
DATA SOURCE NO: CRDEC-CR-87033, ADB108358
AUTHOR: P.E. BAILEY, T.E. HILL, J.J. MCNEELY, T. PETTENSKI, G.L. ROBINSON, S.M. TAUSCHEK
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH, FOR CHEMICAL RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/12/01

COMMENTS: THIS MANUAL PROVIDES A METHODOLOGY THAT WILL GUIDE DOD (DEPARTMENT OF DEFENSE) EQUIPMENT DEVELOPERS IN INCORPORATING NBC (NUCLEAR, BIOLOGICAL, CHEMICAL) SURVIVABILITY REQUIREMENTS INTO THE DESIGN OF MILITARY EQUIPMENT. INCLUDED IN THIS DOCUMENT ARE AN OVERVIEW

OF THE THREAT, SURVIVABILITY CRITERIA, DESIGN GUIDELINES, TESTING PROCEDURES, AND PROPERTIES OF CONTAMINANTS. ALSO, AN APPENDIX CONTAINS QUALITATIVE DATA ON THE COMPATIBILITY OF AEROSPACE CONSTRUCTION MATERIALS WITH CHEMICAL WARFARE (CW) AGENTS AND STANDARD DECONTAMINANTS.

TITLE: OPERATIONAL TEST II (OT II) OF THE AIRCREW UNIFORM INTEGRATED BATTLEFIELD (AUIB)
DATA SOURCE NO: OTN-1322, ADB108561
AUTHOR: J.E. NOWICKI, C.E. ADAMS, C.G. CUNNINGHAM, T.L. LIKELY
ORIGINATING ORG: US ARMY AVIATION BOARD, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/12/24

COMMENTS: THE PURPOSE OF THIS TEST WAS TO EVALUATE THE ABILITY OF AIRCREW MEMBERS TO PERFORM DUTIES, WITHOUT SUBJECTING THEM TO ANY HEALTH OR SAFETY HAZARDS WHILE WEARING THE AIRCREW UNIFORM INTEGRATING BATTLEFIELD (AUIB) IN A SIMULATED COMBAT ENVIRONMENT. AIRCREWS WERE FOUND TO BE ABLE TO PERFORM ALL REQUIRED TASKS WHILE WEARING THE AUIB THROUGHOUT THE SIMULATION. EXTENSIVE TABLES OF ANSWERS TO QUESTIONNAIRES AND INTERVIEWS ARE PRESENTED.

TITLE: NRDEC SCIENCE SYMPOSIUM PROCEEDINGS, 2-4 JUNE 1986, VOLUME II
DATA SOURCE NO: NATICK/TR-86/051L, ADB110296
AUTHOR: P.F. DECOSTA
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/06/04

COMMENTS: THIS IS A COLLECTION PAPERS PRESENTED AT THE US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (NRDEC) SCIENCE SYMPOSIUM. TOPICS COVERED IN THIS VOLUME (II) INCLUDE: INDIVIDUAL PROTECTION CONCEPTS; CHEMICAL, BIOLOGICAL PROTECTION FOR THE SOLDIER; MILITARY MATERIALS DEVELOPMENT; INITIATIVES IN RATIONS; FOOD SCIENCE AND FEEDING CONCEPTS; AND SYSTEMS IMPROVEMENT. (SEE ALSO VOLUME I, ADA179101.)

TITLE: CHEMICALLY HARDENED ARMY MEDICAL FACILITIES,
DATA SOURCE NO: NATICK/TR-87/018L, ADB111122
AUTHOR: J. DALE, E. PAUL, S.B. FACILITIES

ORIGINATING ORG: SYSTEM RESEARCH LABORATORIES, INC., DAYTON, OH, FOR US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/08/01

COMMENTS: THIS REPORT IS THE RESULT OF AN EFFORT TO DEFINE SYSTEM REQUIREMENTS AND ANALYZE DESIGN OPTIONS FOR THREE LEVELS OF CHEMICALLY HARDENED ARMY MEDICAL FACILITIES - THE BATTALION AID STATION (BAS), THE DIVISION CLEARING STATION (DCS), AND THE CORPS LEVEL HOSPITAL (CLH). SYSTEM REQUIREMENT CONSIDERATIONS INCLUDE THE THREAT, PROTECTION LEVELS, FLOOR SPACES, ENVIRONMENTAL CONDITIONING, PATIENT FLOW RATES, CONSUMPTION RATES, POWER REQUIREMENTS, MOBILITY, LOGISTICS, DETECTION AND WARNING, TRANSPORTABILITY, AND DECONTAMINATION. DESIGN OPTIONS ARE PRESENTED BASED ON OPTIMAL COMBINATIONS OF THESE CONSIDERATIONS. TABLES, LAYOUT DRAWINGS, AND LEVEL ONE SKETCHES ARE INCLUDED.

TITLE: INDEPENDENT EVALUATION REPORT, AH-64 AIRCREW PROTECTIVE MASK (XM-43)
DATA SOURCE NO: RE-OTN-1085, ADB111291
AUTHOR: J.R. ARRINGTON
ORIGINATING ORG: US ARMY AVIATION CENTER, FORT RUCKER, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 86/04/01

COMMENTS: THIS REPORT, AN EVALUATION OF THE AH-64 HELICOPTER AIRCREW PROTECTIVE MASK, CONTAINS THE RESULTS OF AN INDEPENDENT EVALUATION OF THE MASK PERTAINING TO OPERATIONAL CAPABILITY. REPORT LISTS DATA ON MASK DONNING TIMES, MASK AUDIO CHARACTERISTICS, VISUAL CHARACTERISTICS, AND DURABILITY. PROBLEMS WERE ENCOUNTERED DURING PROTECTION FACTOR TESTING DUE TO POOR QUALITY OF THE SAMPLE MASKS.

TITLE: CHEMICAL WARFARE CHALLENGE TO AIRCREWS: EXECUTIVE SUMMARY
DATA SOURCE NO: AAMRL-TR-86-032, ADC039916
AUTHOR: J.G. JENSEN, J.V. HANY, D.E. VANDERVEER, G.M. JAMES
ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/06/01

COMMENTS: THIS IS THE EXECUTIVE SUMMARY OF A STUDY TO DETERMINE THE CHEMICAL AGENT CHALLENGE TO AIRCREWS DURING SELCTED AIR FORCE MISSIONS. IN ORDER TO DEVELOP PROTECTIVE EQUIPMENT AGAINST CHEMICAL CHALLENGE, EXPOSURE LEVELS ENCOUNTERED BY AIRCREW AND AIRCRAFT DURING

THEIR MISSION MUST BE EVALUATED. MISSION PROFILES PROVIDED BY THE MILITARY AIRLIFT COMMAND (MAC), STRATEGIC AIR COMMAND (SAC), AND TACTICAL AIR COMMAND (TAC) FOR AIRCRAFT IN CURRENT INVENTORY WERE USED AS INPUT FOR EXPOSURE DETERMINATION. CHALLENGE LEVELS WERE PREDICTED FROM SIMULATIONS OF A FULL SCALE EUROPEAN CHEMICAL WARFARE (CW) SCENARIO. COMPUTER SIMULATION USING NUSSE II (NON-UNIFORM SIMPLE SURFACE EVAPORATION MODEL, VERSION 2), TSARDOSE, CHALLENGE, AND SHELTER MODELS PROVIDED THE RESULTS FOR THIS STUDY. RESULTS INCLUDE: CHEMICAL CHALLENGE LEVELS ENCOUNTERED BY AIRCREW AND AIRCRAFT FOR ALL PHASES OF THEIR MISSION AND CHEMICAL CHALLENGE LEVELS PRODUCED BY CONTAMINATED CARGO TRANSPORTED WITHIN CARGO AIRCRAFT. THE STUDY EXAMINED CHEMICAL AGENT INTERACTION WITH THE AIRCRAFT'S ENVIRONMENTAL CONTROL SYSTEM (ECS), HAZARD LEVELS PRODUCED FROM CONTAMINATED CARGO, AND HAZARD VARIABILITY DUE TO THE AMOUNT OF LAPSE TIME FROM CHEMICAL ATTACK TO MISSION START.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION, FINAL REPORT, EXECUTIVE SUMMARY
DATA SOURCE NO: YQ-DR-86-1, ADC954107
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, CHURCH FALLS, VA FOR AIR BASE SURVIVABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: THIS REPORT CONTAINS THE PURPOSE, PLANNING, MAJOR OBJECTIVES, DEMONSTRATION PHASES AND OVERALL CONCLUSIONS AND RECOMMENDATIONS FOR SALTY DEMO AT SPANGDAHLEM AIR BASE, WEST GERMANY. SALTY DEMO WAS BASED ON THE AIR BASE SURVIVABILITY (ABS) TOPIC STRUCTURE FOR THE AIR FORCE: ACTIVE DEFENSE; PASSIVE DEFENSE; AIRCRAFT ENHANCEMENT/MODIFICATION; RECOVERY; COMMAND, CONTROL AND COMMUNICATION (C3)/AIR TRAFFIC CONTROL; AND AIR BASE SURVIVABILITY INTEGRATION.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION, FINAL REPORT. VOLUME III, INTEGRATED AIR BASE SURVIVABILITY ANALYSIS
DATA SOURCE NO: YQ-DR-86-1, ADC954110
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, CHURCH FALLS, VA FOR AIR BASE SURVIVABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: THIS VOLUME PROVIDES AN INTEGRATED ANALYSIS OF AIR BASE SURVIVABILITY (ABS) DURING AND AFTER SIMULATED ATTACKS ON SPANGDAHLEM AIR BASE, WEST GERMANY, AS DEMONSTRATED IN SALTY DEMO IN 1985. ABS LIMITING FACTORS OBSERVED AT THE DEMONSTRATION ARE IDENTIFIED. RESULTS FROM THE DEMONSTRATION AND FROM PAST DEMONSTRATION ANALYSIS ARE PRESENTED INCLUDING: SORTIES GENERATED; MINIMUM OPERATING STRIP (MOS) CLOSURE TIME; PERSONNEL AVAILABILITY; AND CASUALTIES. RECOMMENDATION TO

IMPROVE ABS ARE PROVIDED IN THE FOLLOWING AREAS: FACILITIES/COMMUNICATIONS; PERSONNEL; VEHICLES; EXPENDABLE ITEMS; AND PROTECTION OF CRITICAL RESOURCES.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION, FINAL REPORT, VOLUME V, AIRCRAFT GENERATION
DATA SOURCE NO: YQ-DR-86-1, ADC954112
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, CHURCH FALLS, VA FOR AIR BASE SURVIVABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: THIS VOLUME DISCUSSES THE IMPACT OF THE COMBAT OPERATIONS SIMULATED IN SALTY DEMO ON THE CAPABILITY OF THE BASE TO GENERATE CREW-READY AIRCRAFT. SPECIFIC FUNCTIONAL AREAS ADDRESSED INCLUDE: INTEGRATED COMBAT TURNS (ICT), UNSCHEDULED AIRCRAFT MAINTENANCE, BACK-SHOP MAINTENANCE, AIRCRAFT BATTLE DAMAGE REPAIR (ABDR), MUNITIONS BUILD-UP AND RESUPPLY, PETROLEUM, OIL, AND LUBRICANTS (POL), SUPPLY, AND TRANSPORTATION. OVERALL INTEGRATION OF THESE AIRCRAFT GENERATION FUNCTIONS IS DISCUSSED. IMPACT OF CASUALTIES, INDIVIDUAL PROTECTION, FACILITIES, AND TRAINING AND EVALUATION ARE DESCRIBED. COPIES OF DATA COLLECTION FORMS USED IN THE AIRCRAFT GENERATION AREAS ARE INCLUDED.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION, FINAL REPORT, VOLUME VIII, COMMAND, CONTROL, AND COMMUNICATIONS
DATA SOURCE NO: YQ-DR-86-1, ADC954117
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, CHURCH FALLS, VA FOR AIR BASE SURVIVABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: THIS VOLUME OF THE SALTY DEMO REPORT DISCUSSES THE IMPACT OF THE LOSS OF COMMUNICATIONS ON SORTIE GENERATION AFTER AN ATTACK. THE DAMAGE WAS MEASURED BY LOOKING AT THE FOLLOWING: AIR TRAFFIC CONTROL (ATC) FACILITIES AND PROCEDURES; BASE CABLE SYSTEMS; BASE RADIO SYSTEMS; BASE TELEPHONE SYSTEMS; AND BASE MESSAGE CENTER. RECOMMENDATIONS WERE GIVEN TO SOLVE THE DEFICIENCIES.

TITLE: AIR BASE SURVIVABILITY DEMONSTRATION, FINAL REPORT, VOLUME IX, MEDICAL
DATA SOURCE NO: YQ-DR-86-1, ADC954118
ORIGINATING ORG: COMPUTER SCIENCES CORPORATION, CHURCH FALLS, VA FOR AIR BASE SURVIVABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL

CLASSIFICATION: SECRET
DOCUMENT DATE: 86/01/10

COMMENTS: THIS VOLUME CONTAINS THE MEDICAL ANALYSIS OF SALTY DEMO AT SPANGDAHLEM AIR BASE, WEST GERMANY. THE OBJECTIVE OF THIS PORTION WAS TO: (1) DETERMINE THE EFFECTIVENESS OF THE FIRST AND SECOND ECHELON CARE; (2) COMPARE THE CURRENT SECOND ECHELON WITH FUTURE (SURVIVABLE COLLECTIVE PROTECTION SYSTEM - MEDICAL (SCPS-M)) BY QUANTIFYING THE TIMELINESS OF CASUALTY TRANSPORT, DECONTAMINATION, AND TRIAGE; EFFECTIVENESS OF CASUALTY TREATMENT; EFFECTIVENESS OF MEDICAL COMMAND, CONTROL, AND COMMUNICATION (C3); AND ADEQUACY OF SECOND ECHELON TABLE OF ALLOWANCES, ASSIGNED MANPOWER LEVELS, AND SYSTEM SIZING; (3) OVERALL TIMELINESS AND EFFECTIVENESS OF RETURNING MINIMAL CASUALTIES TO DUTY; (4) OVERALL TIMELINESS OF PREPARING CASUALTIES FOR EVACUATION FROM SECOND TO THIRD ECHELON; (5) IMPACT OF THE SQUADRON MEDICAL ELEMENT (CME) ON THE CAPABILITY OF THE WING TO PERFORM ITS MISSION; AND (6) ENSURE REALISTIC PERSONNEL ATTRITION BE INTEGRATED INTO THE OVERALL AIR BASE OPERATIONAL DEMO. REPORT INCLUDES CARDS WITH DESCRIPTIONS OF PATIENT AILMENTS.

TITLE: ARMOR OPERATIONS IN MISSION ORIENTED PROTECTIVE POSTURE LEVEL IV (MOPPIV)
DATA SOURCE NO: BRL-IMR-860
AUTHOR: MORRISSEY, J.A., WICK, C.H., KEETCH, A.K.
ORIGINATING ORG: BALLISTIC RESEARCH LAB, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 86/01/01

COMMENTS: THIS IS A REPORT OF A FIELD STUDY ACCOMPLISHED UNDER THE DO49 TESTING PROGRAM. THE DATA PRESENTED ARE THE RESULTS OF ARMOR OPERATIONS IN MOPP IV CONDUCTED IN A HOT ENVIRONMENT. THE TEMPERATURES WERE BETWEEN 70 AND 90 DEGREES F AT CAMP PENDELTON, CAL. THE OBJECTIVE OF THE STUDY WAS TO EVALUATE THE OPERATIONAL CAPABILITY OF A TANK PLATOON WHEN WEARING MOPP IV. RESULTS ARE PROVIDED FOR TASKS WHICH WERE ACCOMPLISHABLE BY THE TANK CREWS. DATA ON TIMES FOR COMPLETION AND INCREASED TIME TO PERFORM ARE ALSO INCLUDED.

LITERATURE REVIEW FOR 1987

TITLE: BIOLOGICAL/SMALL-PARTICLE AEROSOL REVIEW, PHASE II: MODEL-FIELD TEST COMPARISONS
DATA SOURCE NO: CRDEC-CR-87054, ADC040637
AUTHOR: S. KAUFMAN, W.O. GORDON, D.M. TAYLOR
ORIGINATING ORG: ANALYSIS AND SIMULATION INCORPORATED, BUFFALO, NY FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 87/02/01

COMMENTS: IN THIS STUDY, OUTPUT FROM THE GAPCAP AND K-THEORY AEROSOL DIFFUSION PREDICTIVE MODELS WAS COMPARED TO EXPERIMENTAL DATA. EVEN AFTER SPATIAL SMOOTHING OF EXPERIMENTAL DATA, THE MEAN ABSOLUTE DIFFERENCE BETWEEN EXPERIMENTAL AND PREDICTED OUTPUTS ON A COMMON-LOGARITHMIC SCALE WAS COMPUTED TO BE APPROXIMATELY 0.6 FOR EACH MODEL. NO GENERAL RULE WAS APPARENT FOR DETERMINING THE EXPERIMENTAL CONDITIONS THAT EITHER MODEL WOULD BETTER REPRODUCE EXPERIMENTAL RESULTS.

TITLE: CLASSIFIED TITLE
DATA SOURCE NO: CRDEC-TR-87009, ADC040885
AUTHOR: E.C. PENSKI, H.M. WALKER, J.H. BUCHANAN
ORIGINATING ORG: MICOM, REDSTONE ARSENAL, AL FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: CONFIDENTIAL
DOWNGRADING DATE: 01/05/01
DOCUMENT DATE: 87/03/01

COMMENTS: THE PURPOSE OF THIS EFFORT IS TO STUDY THE EVAPORATION BEHAVIOR OF BINARY AGENTS AND DETERMINE THE PARTIAL VAPOR PRESSURE OF THE ACTIVE COMPONENTS AS A FUNCTION OF COMPOSITION ON TEMPERATURE. THE RESULTS WILL PERMIT SYSTEMS ANALYSIS TO DETERMINE THE OPTIMUM WEAPON DESIGN FROM CALCULATIONS OF SYSTEM PERFORMANCE.

TITLE: MODIFICATION OF THE M-51 SHELTER SYSTEM
DATA SOURCE NO: CRDEC-CR-87037, ADB108803
AUTHOR: J.T. MCGRATH, A.T. BASCHMANN
ORIGINATING ORG: CHEMFAB NEW YORK INCORPORATED, BUFFALO, NY FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS REPORT DESCRIBES THE DEVELOPMENT OF DESIGN MODIFICATIONS TO THE M-51 SHELTER AND ENTRANCE ASSEMBLY. THE PURPOSE OF THE PROGRAM IS TO PROVIDE FOR A MODIFIED M-51SS WHICH CAN BE INTEGRATED INTO THE CURRENT FIELDED SYSTEMS AND PROCUREMENT OF COLLECTIVE PROTECTION

SHELTERS WHILE NEW DESIGNS OF SHELTER SYSTEMS ARE QUALIFIED FOR FIELD SERVICE. PROGRAM RESULTS: WEIGHT REDUCTION FROM 580 TO 430 POUNDS, MARKED DECREASE IN ASSEMBLY EFFORT AND TIME, INCREASED HEADROOM, AND ADDITION OF INTERIOR EQUIPMENT HANGERS.

TITLE: IMPLEMENTATION OF THE CHEMICAL COMPOUND STRUCTURE AND PROPERTY DATA BASE (CCSPDB) PROTOTYPE
DATA SOURCE NO: CRDEC-CR-87048
AUTHOR: L.E. FRITTS, D.E. BLOCH, M. STONER, J.P. TONER
ORIGINATING ORG: CRC SYSTEMS INCORPORATED, FAIRFAX, VA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: THIS REPORT DISCUSSES THE SET-UP OF THE CHEMICAL COMPOUND STRUCTURE AND PROPERTY DATA BASE (CCSPDB) PROTOTYPE. THIS DATA BASE IS MADE UP OF TWO SMALLER, LINKED DATA BASES (THE ILF CHEMICAL DATA BASE AND THE TOXICOLOGY SCREENING DATA BASE). THE ILF (INDUSTRIAL LIAISON FILE) CONTAINS CHEMICAL DATA FROM 6000 UNCLASSIFIED CHEMICAL STRUCTURES. THE TOX DATA BASE CONTAINS CHEMICAL TOXICOLOGY DATA FROM THE SAME 6000 USED TO SET UP THE ILF DATA BASE. DATA FIELDS INCLUDE: GRAPHICAL REPRESENTATION OF STRUCTURES, CHEMICAL NAME AND SYNONYMS, MOLECULAR FORMULAS, CRDEC COMPOUND NUMBER, PHYSICAL PROPERTY AND STATE DATA, LAS REGISTRY NUMBER, LD50, MED50, AND EFFECTS.

TITLE: DEVELOPMENT OF A MULTIPURPOSE CHEMICAL/BIOLOGICAL DECONTAMINANT
DATA SOURCE NO: CRDEC-CR-87025
AUTHOR: D.W. MASON, D.R. COLEMAN, R.B. SPAFFORD, T.E. LAWLER
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: VARIOUS CANDIDATE DECONTAMINATES WERE TESTED AS REPLACEMENTS TO DS2 (DECONTAMINATING SOLUTION 2) AND STB (SUPERTROPICAL BLEACH). CANDIDATE DECONTAMINATES WERE TESTED FOR COMPATIBILITY WITH VARIOUS PLASTICS, ADHESIVES, SEALANTS, RUBBERS, ELASTOMERS, AND PAINTED SURFACES. CANDIDATE DECONTAMINATES INCLUDE: WATER, ASH (ACTIVATED SOLUTION OF HYPOCHLORITE), SLASH (SELF LIMITING ACTIVATED SOLUTION OF HYPOCHLORITE), SADS (SURFACE ACTIVE DISPLACEMENT SYSTEMS), SACRIFICIAL COATINGS, MICRO EMULSIONS, DS2, STB SLURRY, REACTIVE POLYMERS, EMULSIONS, SOFT HALOGENS, GERMAN C-8, MICRO CAPSULES, AND DECAP CHUTE (MULTIPLE FORMULATION DECONTAMINANT). EFFICACY OF DECONTAMINATES WERE TESTED

AGAINST HD (MUSTARD), THD (THICKENED MUSTARD), GD, TGD (THICKENED GD), VX, AND EA 1699 ON PAINTED SURFACES. APPENDICES CONTAIN FORMULATIONS FOR ALL CITED DECONTAMINANTS.

TITLE: INDIVIDUAL PROTECTION TESTING, TASK I--PROTECTIVE ENSEMBLE TESTING
DATA SOURCE NO: CRDEC-CR-87043
AUTHOR: M.R. KUHLMAN, R.W. COUTANT, G.W. KEIGLEY
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THE PURPOSE OF THIS STUDY WAS TO DEVELOP AN IMPROVED TEST METHODOLOGY FOR INDIVIDUAL PROTECTIVE EQUIPMENT (IPE) WHICH IS MORE CAPABLE OF MEASURING THE LEAKAGE OF THE ENSEMBLE UNDER REALISTIC CONDITIONS. PERSONNEL WEARING IPE PERFORMED VARIOUS MOVEMENTS WHICH DEPENDED ON THE TYPE OF ACTIVITY BEING SIMULATED. PASSIVE SAMPLING DEVICES WERE PLACED INSIDE THE IPE TO COLLECT CHALLENGE VAPOR AT VARIOUS LOCATIONS WITHIN THE IPE. SEVERAL RECOMMENDATIONS WERE MADE FOR FURTHER DEVELOPMENT IN THIS AREA.

TITLE: BIOLOGICAL/SMALL-PARTICLE AEROSOL REVIEW, PHASE I: FIELD TEST DATA BASE
DATA SOURCE NO: CRDEC-CR-87052
AUTHOR: S. KAUFMAN, W.G. GORDON
ORIGINATING ORG: ANALYSIS AND SIMULATION, INCORPORATED, BUFFALO, NY FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: SECRET
DOCUMENT DATE: 87/02/01

COMMENTS: THIS DOCUMENT CONTAINED INFORMATION CONCERNING BEHAVIOR OF AEROSOLS UNDER A VARIETY OF ENVIRONMENTAL CONDITIONS. BOTH CLASSIFIED AND UNCLASSIFIED BIOLOGICAL/SMALL PARTICLE AEROSOL FIELD TEST RESULTS WERE PRESENTED. AEROSOL FIELD TEST DATA SUMMARIES WERE ALSO INCLUDED. THESE STUDIES CAN BE USEFUL FOR VALIDATION STUDIES OF COMPUTER MODELS DESIGNED TO PREDICT AEROSOL DOWNWIND DOSAGES AND DEPOSITIONS.

TITLE: XM135 MULTIPLE LAUNCH ROCKET SYSTEM BINARY CHEMICAL WARHEAD DESIGN AND TEST EVALUATION
DATA SOURCE NO: CRDEC-CR-87044

AUTHOR: T.D. BURNETTE, O.E. BENZ, D.L. SIEGLE
CRIGINATING ORG: THE MARQUARDT COMPANY, VAN NUYS, CA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS REPORT PROVIDES A DETAILED DESCRIPTION OF THE DESIGN AND DEVELOPMENT OF A PROTOTYPE ALTERNATE BINARY CHEMICAL WARHEAD FOR THE MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) XM135. THE DESIGN INCLUDES MANY OFF-THE-SHELF COMPONENTS INCLUDING A PUMP IMPELLER TO MIX THE BINARY REACTANTS AND AN ELECTRIC MOTOR TO DRIVE THE IMPELLER. TEST EVALUATIONS VERIFIED THAT THE DESIGN CONCEPT COULD MEET OR EXCEED ALL OF THE OPERATIONAL AND FUNCTIONAL REQUIREMENTS.

TITLE: HUMAN FACTORS EVALUATION OF A REDESIGNED BASEPLATE AND BASEPLATE WRENCH FOR THE M687, 155MM, GB2 BINARY PROJECTILE
DATA SOURCE NO: HEL-TN-1-87
AUTHOR: R.P. MERKEY, P.S. PAICOPOLIS
ORIGINATING ORG: HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: THE ASSEMBLY TIME FOR THE M687 BINARY PROJECTILE IS RE-EVALUATED AFTER THE PROJECTILE BASEPLATE IS REDESIGNED AND A BASEPLATE WRENCH IS DEVELOPED. ASSEMBLY TIME DATA ARE PROVIDED FOR DAYLIGHT AMBIENT, HOT CHAMBER, BLACKOUT AND MISSION ORIENTED PROTECTION POSTURE (MOPP IV) CONDITIONS. CONTAINS A SHORT DISCUSSION OF AN INCOMPLETE TRIAL AT MINUS 25 DEGREES FAHRENHEIT.

TITLE: HUMAN FACTORS RESEARCH SIMULATOR
DATA SOURCE NO: HEL-TM-8-87
AUTHOR: G.L. HERALD
ORIGINATING ORG: HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/03/01

COMMENTS: DESCRIBES A SIMULATOR SYSTEM WITH TERRAIN IMAGING CAPABILITIES USED FOR VARIOUS ARMY HUMAN FACTORS RESEARCH. MERGER OF SUCH ADVANCED TECHNOLOGICAL CAPABILITIES WILL PERMIT THE HUMAN FACTORS RESEARCH SIMULATOR TO MODEL INCREASINGLY SOPHISTICATED SOLDIER-MACHINE INTERFACES. GENERAL HUMAN FACTORS DESIGN PROBLEMS AND CONSIDERATIONS REGARDING AVIATION AND AIR DEFENSE SIMULATORS ARE DISCUSSED. AN EXAMPLE OF AN AVIATION BASELINE SYSTEM IS INCLUDED.

TITLE: EVALUATION OF TECHNOLOGY FOR PROTECTION MAXIMIZATION OF THE XM-40 PROTECTIVE MASK
DATA SOURCE NO: CRDEC-CR-87058
AUTHOR: W. FRITCH, D. STARK, R. MARKHAM, L. ALTHOUSE, A. LUSTINGER
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: THIS REPORT PRESENTS WORK THAT IDENTIFIES POTENTIAL CONCEPTS FOR MAXIMIZING PROTECTION OF THE XM-40 MASK. SEVEN OF THE THIRTEEN CONCEPTS ARE RECOMMENDED FOR PROTECTION FACTOR TESTING. THE REPORT ALSO DETAILS THE PROCESS AND THE LOGIC INVOLVED IN SELECTING CONCEPTS. THE SAME DETAILS ARE PRESENTED FOR THE PROCEDURES WHICH WERE NOT SELECTED. REJECTION REASONS INCLUDE SUCH THINGS AS PRODUCIBILITY, COMFORT, MISSION ACCOMPLISHMENT, PROTECTION FACTORS, AND DEVELOPMENT COSTS.

TITLE: COLD WEATHER DECONTAMINATION OPERATIONS
DATA SOURCE NO: CRDEC-CR-87060
AUTHOR: J.J. REIDY, J.V. BAUM, T.E. HILL, R.C. RUDOLPH, T.B. STANFORD
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/01

COMMENTS: REPORT OF A LITERATURE REVIEW, STUDY, AND TESTS TO DETERMINE THE ABILITY OF WATER BASED DECONTAMINATION SYSTEMS TO PERFORM IN COLD WEATHER. STUDY EXAMINES SANATOR TYPE EQUIPMENT AND VARIOUS TYPES OF OPERATOR CLOTHING. FREEZING OF DECONTAMINATION SOLUTION IS PREVENTED BY VARIOUS ANTI-FREEZE WATER SOLUTIONS. SOME EFFECTIVENESS DATA IS GIVEN. CONCLUSIONS: COLD WEATHER (-35 TO -50 DEGREES FAHRENHEIT) DECONTAMINATION OPERATIONS ARE FEASIBLE BUT ARE EXTREMELY DIFFICULT, DANGEROUS, AND LOGISTICALLY DEMANDING.

TITLE: CANE LITERATURE RESEARCH COMPENDIUM, VOLUME III: P2NBC2 ADDENDUM
DATA SOURCE NO: ORI-TR-2532C, ADB109017
AUTHOR: G. STARKEY, C. BABCOCK, R. HERSHBERGER, L. WILLIAMS
ORIGINATING ORG: ORI, INCORPORATED, MONTEREY, CA FOR ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIRD OF THREE VOLUMES PREPARED IN SUPPORT OF THE COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT FORCE DEVELOPMENT AND EXPERIMENTATION (CANE FTD). SEE ADB109015 AND ADB109016. THIS REPORT SUPPORTED THE STUDY OF PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS ON NUCLEAR, BIOLOGICAL, CHEMICAL (NBC) AND EXTENDED OPERATIONS ON CREWS (P2NBC2). DOCUMENT CONTAINS THE FOLLOWING DOCUMENT INDEXES: ALPHABETICAL LISTING OF DOCUMENTS RELATED TO P2NBC2; OTHER DOCUMENTS REVIEWED, NOT RELATED TO P2NBC2; POTENTIAL DOCUMENTS RELATED TO P2NBC2; AND A CATEGORY INDEX OF DOCUMENTS RELATED TO P2NBC2 COVERING MISSION PERFORMANCE, PHYSIOLOGICAL/PSYCHOLOGICAL STRESS, MATERIEL EVALUATION, COMPUTER MODELING, BACKGROUND INFORMATION, AND AN ABSTRACT SECTION CONTAINS AN ABSTRACT FOR EACH P2NBC2 RELATED DOCUMENT.

TITLE: SUMMARY REPORT: CHEMICAL WARFARE IN THE THIRD WORLD
DATA SOURCE NO: IDA-P-2017, ADA182729
AUTHOR: F.J. KROESEN, W.H. GINN, J. GERRITY, J.K. STONER, E.R. THOMPSON, D.L. FELT
ORIGINATING ORG: BURDESHAW ASSOCIATES LIMITED, BETHESDA, MD FOR OFFICE OF THE ASSISTANT TO THE SECRETARY OF DEFENSE, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/04/01

COMMENTS: THIS REPORT IS AN UNCLASSIFIED, CONDENSED VERSION OF IDA PAPER P-2014. FOUR BRIEF SCENARIOS ARE PRESENTED, THREE WITH NARRATIVE VIGNETTES. REPORT BRIEFLY DESCRIBES SOME CHEMICAL AGENTS AND DELIVERY SYSTEMS FOR SOVIET UNION/WARSAW PACT COUNTRIES AND NORTH KOREA AND THE THREAT FROM THE THIRD WORLD AND TERRORISTS. THE FIVE CONCLUSIONS REACHED ARE: THE FULL EXTENT OF THE CHEMICAL WARFARE (CW) THREAT IS NOT KNOWN, THEREFORE CONTINUING INTELLIGENCE IS REQUIRED; THE NUMBER OF COUNTRIES HAVING A CW CAPABILITY HAS GROWN AND WILL CONTINUE TO GROW; CW IS SEEN AS ACCEPTABLE AND LEGITIMATE BY A NUMBER OF NATIONS; THE ADVANTAGES OF CW BY FORCES FACING A BETTER EQUIPPED FORCE ARE SUFFICIENT TO MAKE IT ATTRACTIVE; THE CW THREAT AGAINST US FORCES AND US GOVERNMENTAL ACTIVITIES IS GROWING, BOTH FROM HOSTILE FORCES AND FROM TERRORISTS.

TITLE: FILL, CLOSE, LOAD, ASSEMBLE, AND PACKOUT TECHNOLOGY FOR THE 8-INCH, VX-2, XM736 PROJECTILE AND THE BIGEYE BOMB (BLU-80/B)
DATA SOURCE NO: CRDEC-TR-87042, ADB112087
AUTHOR: A.M. JACKSON, K. GADDE, J.W. GOHEEN, W.J. SEMIATIN

ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/01

COMMENTS: THE MANUFACTURING METHODS AND TECHNOLOGY FOR THE BLU-80/B BIGEYE BINARY CHEMICAL BOMB AND THE XM736 BINARY CHEMICAL PROJECTILE ARE DESCRIBED. AREAS OF DISCUSSION INCLUDE THE INERTIA-WELD CLOSURE FOR THE BINARY COMPONENT CANISTERS AND HEAT DISCIPATION DURING THE WELD PROCESS, HELIUM LEAK TESTING, LIQUID (ETHYLALCOHOL/WATER MIX) FILL AND LEAK TESTING ADDITION OF THE POLYMER POLYISOBUTYLMETHACRYLATE (PIBM) TO THE QL COMPONENT AS A THICKENER, CANISTER FILL, WEIGH, CLEANING AND DRYING PROCEDURES.

TITLE: OVERVIEW OF TEST STRATEGIES AND INSTRUMENTATION APPROPRIATE TO FIELD ASSESSMENT OF DISSEMINATORS OF TRANSPORTABLE (ATMOSPHERIC) PARTICLES
DATA SOURCE NO: CRDEC-CR-87030
AUTHOR: B.V. GERBER
ORIGINATING ORG: OPTIMETRICS INCORPORATED, ANN ARBOR, MI FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS DOCUMENT DESCRIBES THE GENERAL NATURE OF CHEMICAL AGENT DEPLOYMENT AND THE TEST CONDITIONS AND EQUIPMENT USED TO QUANTIFY THE DISSEMINATED AGENT. A BRIEF DESCRIPTION OF THE SYSTEMS ANALYSIS PROCESS IS GIVEN AS BACKGROUND TO THE OBJECTIVES OF FIELD, CHAMBER AND LABORATORY INVESTIGATIONS. TEST STRATEGY; PARTICLE SIZE DISTRIBUTION ACHIEVABLE BY KNOWN DISSEMINATION MODES; AND CLASSIFICATION, EVALUATION, AND CALIBRATION OF PARTICLE MEASUREMENT EQUIPMENT ARE DISCUSSED. ASPIRATED SAMPLERS ARE GENERALLY EVALUATED. THE ROTARY IMPACTOR IS DESCRIBED AND GENERALLY EVALUATED. "NON-INTRUSIVE" SAMPLING DEVICES ARE IDENTIFIED AND DISCUSSED RELATIVE TO PARTICLES 5-100 MICROMETER (UM) DIAMETER. INSTRUMENTS AVAILABLE AT THE CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) ARE LISTED. RECOMMENDATIONS ARE MADE FOR FURTHER EFFORT AT CRDEC.

TITLE: CANE LITERATURE RESEARCH COMPENDIUM, VOLUME I: INDEXES
DATA SOURCE NO: ORI-TR-2532A, ADB109015
AUTHOR: D. JONES, T. KITTING, C. BABCOCK, J. MORABIT, R. HAYNIE, T. FARRELL
ORIGINATING ORG: ORI INCORPORATED, MONTEREY, CA FOR US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: REPORT PREPARED IN SUPPORT OF THE COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT FORCE DEVELOPMENT TEST AND EXPERIMENTATION (CANE FDTE). THE PURPOSE OF CANE FDTE IS TO PROVIDE MEASURED DATA AND REALISTIC FIELD EXPERIENCE FOR COMBAT, COMBAT SUPPORT, AND COMBAT SUPPORT OPERATIONS IN THE NUCLEAR CHEMICAL ENVIRONMENT (NCE). CONTAINS AN ALPHABETICAL INDEX OF CANE FDTE-RELATED DOCUMENTS. CANE FDTE CATEGORY AND ISSUE AREA INDEXES, AND AN INDEX OF DOCUMENTS REVIEWED BUT NOT CANE FDTE RELATED. EXACT TITLES MAY NOT BE FOUND BECAUSE INITIAL ARTICLES (A, AN, THE) WERE DROPPED TO ALLOW ALPHABETIZING ON THE FIRST MAJOR TITLE WORD; SOME TERMS WERE "AMERICANIZED"; AND SOME TITLES WERE SHORTENED DUE TO EXCESS LENGTH. OTHERWISE AN EXCELLENT RESEARCH COMPENDIUM. SEE ALSO VOLUMES II AND III, ADB109016 AND ADB109017, RESPECTIVELY.

TITLE: CANE LITERATURE RESEARCH COMPENDIUM, VOLUME II: ABSTRACTS
DATA SOURCE NO: ORI-TR-25328, ADB109016
AUTHOR: D. JONES, T. KITTING, C. BABCOCK, J. MORABIT, R. HAYNIE, T. FARRELL
ORIGINATING ORG: ORI INCORPORATED, MONTEREY, CA FOR US ARMY CHEMICAL SCHOOL, FOR MCCLELLAN, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: SECOND OF THREE VOLUMES PREPARED IN SUPPORT OF THE COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT FORCE DEVELOPMENT TEST AND EXPERIMENTATION (CANE FDTE). SEE ADB109015 AND ADB109017. CONTAINS AN ABSTRACT FOR EACH DOCUMENT. ENTRIES ARE BASED ON THE ALPHABETIZED TITLE LISTING OF APPLICABLE DOCUMENTS. EACH ENTRY ALSO CONTAINS A CATEGORY LISTING SHOWING WHETHER THE DOCUMENT IS APPLICABLE TO: MISSION PERFORMANCE, COMPUTER MODELING, MATERIEL EVALUATION, PHYSIOLOGICAL/PSYCHOLOGICAL STRESS, OR AS BACKGROUND INFORMATION. MANY OF THE ABSTRACTS ARE TAILORED TO CANE FDTE NEEDS AND ARE MORE DETAILED THAN THE AVERAGE ABSTRACT.

TITLE: EFFECTS OF MUSTARD GAS IN CHEMICAL WARFARE
DATA SOURCE NO: AFMIC-HT-020-87, ADB109866
AUTHOR: Y. SKORNIK, Y. BENIEL, Y. SHEMER
ORIGINATING ORG: ARMED FORCES MEDICAL INTELLIGENCE CENTER (AFMIC), FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/16

COMMENTS: (HEBREW TRANSLATION) THIS REPORT GIVES A BRIEF OVERVIEW ON THE EFFECTS OF ACCIDENTAL MUSTARD (HS, HN) EXPOSURE DURING A WORLDWAR II ATTACK. A SHIP CARRYING MUSTARD BOMBS WAS HIT AND THE LIQUID MUSTARD SPREAD OVER THE HARBOR. REPORT COVERS PHYSICAL AND CHEMICAL CHARACTERISTICS; REACTION MECHANISMS; THE CLINICAL PICTURE COVERING EYES, RESPIRATORY SYSTEM, SKIN, DIGESTIVE SYSTEM AND HEMATOPOIETIC SYSTEM; OTHER SYSTEMIC EFFECTS; AND TREATMENT. DOCUMENT HAS AN EXCELLENT REFERENCE LISTING.

TITLE: THE BEHAVIORAL EFFECTS OF ANTICHOLINESTERASE INSULT FOLLOWING EXPOSURE TO DIFFERENT ENVIRONMENTAL TEMPERATURES
AUTHOR: T.G. WHEELER
ORIGINATING ORG: US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS STUDY EVALUATES SOMAN TOXICITY VIA A NUMBER OF BEHAVIORAL TASKS AFTER AN 8 HOUR EXPOSURE TO ONE OF FIVE THERMAL STRESS CONDITIONS (-1, 7, 15, 23 OR 31 DEGREES CELSIUS AT 80 (PLUS OR MINUS) 5 PERCENT RELATIVE HUMIDITY). RODENTS WERE REMOVED FROM AN ENVIRONMENTAL CHAMBER, INJECTED WITH SOMAN AND TESTED 30 MINUTES POST-INJECTION. THE TEST BATTERY INCLUDED: MOTOR ACTIVITY, GRIP STRENGTH, CORE TEMPERATURE, SENSITIVITY TO HEAT, EFFECTS ON MEMORY AND LEARNING, AND A SUBJECTIVE RATING OF THE ANIMAL'S STATE OF HEALTH. A SIGNIFICANT THERMAL STRESS/SOMAN INTERACTION WAS OBSERVED FOR ALL MEASURES. DATA AND REFERENCES ARE GIVEN.

TITLE: CHEMICAL WARFARE PROTECTIVE CLOTHING: IDENTIFICATION OF PERFORMANCE LIMITATIONS AND THEIR POSSIBLE SOLUTION
DATA SOURCE NO: ADA177871
AUTHOR: K.B. PANDOLF, A.E. ALLAN, R.R. GONZALEZ, M.N. SAWKA, L.A. STROSCHEIN, A.J. YOUNG
ORIGINATING ORG: US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE (USARIEM), NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/27

COMMENTS: THIS REPORT REVIEWS RECENT FINDINGS FROM THE US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE DEMONSTRATING THAT AUXILIARY COOLING SIGNIFICANTLY REDUCES PHYSIOLOGICAL STRAIN AND INCREASES TOLERANCE TIME OF SOLDIERS EXERCISING IN PROTECTIVE CLOTHING IN HOT ENVIRONMENTS. FOUR DIFFERENT EXPERIMENTS INVOLVING FIVE WATER-COOLED UNDERGARMENTS ARE DISCUSSED. A NUMBER OF PROTOTYPE MICROCLIMATE COOLING SYSTEMS INVOLVING BOTH AIR-COOLED AND LIQUID-COOLED VESTS HAVE BEEN SHOWN TO BE EFFECTIVE IN ALLEVIATING HEAT STRESS IN SOLDIERS DURING LIGHT

EXERCISE WHILE WEARING CHEMICAL WARFARE (CW) PROTECTIVE CLOTHING IN HOT-WET OR HOT-DRY ENVIRONMENTS. SOME DATA ARE GIVEN IN GRAPH FORM. REFERENCES EXPLAINING THE FOUR EXPERIMENT'S METHODS IN MORE DETAIL ARE GIVEN.

TITLE: THE EFFECT OF ORAL PYRIDOSTIGMINE ON SERUM CHOLINESTERASE ACTIVITY IN MACACA MULATTA
DATA SOURCE NO: USAFSAM-TR-86-34, ADA176789
AUTHOR: D.W. BLICK, M.R. MURPHY, D.P. DAWSON, G.C. BROWN
ORIGINATING ORG: SYSTEMS RESEARCH LABORATORY (SRL), DAYTON, OH FOR US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS REPORT DISCUSSES AN EXPERIMENT IN WHICH RHESUS MONKEYS WERE TREATED WITH AN ORAL DOSE OF PYRIDOSTIGMINE. EARLIER TESTS SHOWED THAT PRETREATMENT WITH PYRIDOSTIGMINE PROVIDES PROTECTION AGAINST THE LETHAL EFFECTS OF SOMAN IN A NUMBER OF SPECIES. DOSAGE SELECTION, DRUG ADMINISTRATION, AND BLOOD SAMPLING FOR THE 30 MONKEYS ARE DISCUSSED. RESULTS AND DISCUSSIONS ARE PRESENTED. IT WAS CONCLUDED THAT THE 2.0 MILLIGRAM PER KILOGRAM (MG/KG) ORAL DOSE WAS CONSISTENT WITH INITIAL EXPECTATIONS BASED ON EARLIER WORK WITH INJECTED PYRIDOSTIGMINE AND THE DATA ON ORAL BIOAVAILABILITY IN HUMANS.

TITLE: AN EVALUATION OF THE COMPLEX TERRAIN DISPERSION MODEL AGAINST LABORATORY OBSERVATIONS: NEUTRAL FLOW OVER 2-D AND 3-D HILLS
DATA SOURCE NO: EPA/600/D-87/017
AUTHOR: D.G. STRIMAITIS, W.H. SNYDER
ORIGINATING ORG: US ENVIRONMENTAL PROTECTION AGENCY (EPA), RESEARCH TRIANGLE PARK, NC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/01

COMMENTS: A COMPARISON IS MADE OF THE PREDICTIONS OF THE COMPLEX TERRAIN DISPERSION MODEL (CTDM) WITH WIND TUNNEL OBSERVATIONS OF FLOW AND DIFFUSION IN A SIMULATED NEUTRAL ATMOSPHERIC BOUNDARY LAYER OVER TWO- AND THREE-DIMENSIONAL HILLS. IT WAS FOUND THAT CTDM PREDICTED CONSIDERABLY LESS CONCENTRATION THAN WAS MEASURED IN THE WIND TUNNEL OBSERVATIONS.

TITLE: MILESTONES - A DIRECTORY OF HUMAN ENGINEERING LABORATORY PUBLICATIONS, 1953-1986
ORIGINATING ORG: US ARMY HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: A CROSS-REFERENCED DIRECTORY OF THE PUBLICATIONS OF THE US ARMY HUMAN ENGINEERING LABORATORY (HEL) AND ITS CONTRACTORS. DOCUMENT IS DIVIDED INTO THREE SECTIONS: SUBJECT-ABSTRACT AREAS, NUMERICAL LISTING, AND LISTING OF REPORTS BY AUTHOR. THERE ARE TWENTY MAIN SUBJECT-ABSTRACT SUBCATEGORIES INCLUDING AIRCRAFT, COMMUNICATIONS, ENVIRONMENTAL, EQUIPMENT, VISION, RESEARCH METHODOLOGY,AND WEAPONS/WEAPONS SYSTEMS. EACH ENTRY INCLUDES THE REPORT TITLE, REPORT NUMBER, AUTHORS, AND A CONCISE ABSTRACT OF THE REPORT. TOPICS INCLUDE DECONTAMINATION; AUTOMATIC CHEMICAL AGENT ALARM; CHEMICAL-BIOLOGICAL PROTECTIVE HOOD AND MASK; EFFECTS OF TEMPERATURE, CLIMATE, AND REST PERIODS ON SKILLS; AND GROUP BEHAVIOR IN CONTINUOUS OPERATIONS.

TITLE: XM40 MASK PREPLANNED PRODUCT IMPROVEMENT, FINAL REPORT
DATA SOURCE NO: CRDEC-CR-87078
AUTHOR: W. MCCORMICK
ORIGINATING ORG: SCOTT AVIATION, MONROVIA, CA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/05/01

COMMENTS: THIS TECHNICAL REPORT SUMMARIZES SCOTT AVIATION'S ACCOMPLISHMENTS IN ACHIEVING THE GOALS AND OBJECTIVES OF CONTRACT MODIFICATION P00015-XM40 PHASEIII (P3I). THE TOTAL PROGRAM WAS NOT COMPLETED. ADDITIONAL WORK IS REQUIRED ON THE QUICK DOFF HOOD AND THE COMMUNICATION SYSTEM. HOWEVER, SIGNIFICANT ACHIEVEMENTS INCLUDE DEVELOPMENT OF TWO AGENT RESISTANT FACE BLANK MATERIALS, AN IMPROVED HOOD DESIGN, MICROPHONE CAPABILITY, AND COMPATABILITY WITH SPH-4HELMET.

TITLE: EVALUATION OF SIZING TECHNIQUES FOR THE XM40 PROTECTIVE MASKS
DATA SOURCE NO: CRDEC-TR-87045, ADB113420
AUTHOR: D.M. SMITH, L.L. CRAWFORD-MOSS, A.T. STEEGMANN
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/05/01

COMMENTS: THE OBJECTIVE OF THIS STUDY WAS TO EVALUATE FACIAL ANTHROPOMETRY TO DEVELOP A METHOD FOR FITTING THE XM40 PROTECTIVE MASK. SIXTEEN FACIAL MEASUREMENTS FROM TEST SUBJECTS WERE STATISTICALLY ANALYZED AND COMPARED WITH AIR FORCE HISTORICAL DATA. AEROSOL CHAMBER TESTS WERE CONDUCTED WITH SUBJECT WEARING EACH OF THREE SIZES OF EITHER THE SCOTT XM40 OR THE ILC XM40. DATA INCLUDES HISTOGRAMS OF FACIAL ANTHROPOMETRIC MEASUREMENTS, CRITICAL FACIAL MEASUREMENTS AND BEST DETERMINE MASK SIZE, FACIAL MEASUREMENT INTERVALS FOREACH MASK SIZE, AND RESULTS OF AEROSOL CHAMBER TESTS. REPORT CONCLUDES THAT ALTHOUGH DETERMINATION OF MASK FIT IS SUBJECTIVE, THE INFORMATION CONTAINED IN THIS REPORT CAN BE USED TO DEVELOP A DEVICE FOR MASK FITTING.

TITLE: BIOLOGICAL WARFARE--A SELECTED BIBLIOGRAPHY
DATA SOURCE NO: ADA178242
AUTHOR V. SHOPE
ORIGINATING ORG: ARMY WAR COLLEGE, BARRACKS, PA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/02/01

COMMENTS: THIS REPORT CONTAINS A COMPILATION OF WHAT IS TERMED "CONTEMPORARY" MATERIAL WRITTEN ABOUT BIOLOGICAL WARFARE. THESE SOURCES INCLUDE SUCH PUBLICATIONS AT TIME, THE WASHINGTON POST, INTERNATIONAL DEFENSE REVIEW, NATIONAL GUARD, CANADIAN DEFENSE QUARTERLY, SCIENCE, AND ARMS CONTROL TODAY. THE BOOKS AND PUBLICATIONS SECTION CONTAINS NUMEROUS REFERENCES TO CONGRESSIONAL PUBLICATIONS, AND TO ARMY REGULATIONS AND MANUALS. GOOD SOURCE FOR UNCLASSIFIED REFERENCES ON BIOLOGICAL WARFARE. VERY FEW OF THESE REFERENCES ARE IN THE CHEMICAL DEFENSE DATA BASE.

TITLE: SPECIFICATION OF DEFENCE POSITIONS FOR OPERATIONAL ANALYSES
DATA SOURCE NO: FFI/NOTAT-87/6001
AUTHOR: P.B. STOREBO
ORIGINATING ORG: NORWEGIAN DEFENCE RESEARCH ESTABLISHMENT (NDRE), KJELLER, NORWAY
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/03/30

COMMENTS: THIS REPORT GIVES VERY GENERAL INFORMATION ON THE ANALYSIS OF CHEMICAL ATTACKS. THE REPORT REFERENCES A GENERAL COMPUTER PROGRAM (GASRISK) WHICH COMPUTES THE EFFECTS OF A CHEMICAL ATTACK ON A DEFENSE POSITION. THE PROGRAM COMPUTES AGENT CONCENTRATION, EXPOSURES, PERSONNEL FITNESS AND CASUALTIES, AS WELL AS EQUIPMENT CONDITIONS. NO COMPUTER CODE IS PRESENTED.

TITLE: EFFECTS OF CONCENTRATION FLUCTUATIONS ON CHEMICAL MUNITIONS EFFECTIVENESS
DATA SOURCE NO: DPG/TA-87/04
AUTHOR: S.R. HANNA, R.C. KOCH
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: THIS REPORT REVIEWS THE OBJECTIVES OF EXISTING METHODOLOGY FOR ESTIMATING CHEMICAL AND SMOKE/OBSCURANT MUNITION EFFECTIVENESS, AND DEALS WITH THE FORMULATION AND APPROACHES THAT HAVE BEEN DEVELOPED TO TREAT CONCENTRATION FLUCTUATIONS. THE APPLICATION FOR WHICH MUNITION EFFECTIVENESS PROCEDURES ARE NEEDED ARE REVIEWED. DEFICIENCIES IN EXISTING METHODOLOGIES AND DATA ARE NOTED, AND RECOMMENDATIONS FOR SHORT-RANGE AND LONG-RANGE RESEARCH PROGRAMS ARE PRESENTED.

TITLE: ON THE SURVIVABILITY OF CHEMICAL POSTURE OF TWO SUBTERRANEAN SHELTERS FOLLOWING A SIMULATED, HIGH-YIELD, NUCLEAR BLAST (OPERATION MINOR SCALE)
DATA SOURCE NO: CRDEC-TR-87022, ADB111977
AUTHOR: A. BIRENZVIGE, M. SCHUMCHYK
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: THIS REPORT DESCRIBES WORK CONDUCTED TO TEST THE CHEMICAL PROTECTIVE POSTURES OF TWO SUBTERRANEAN SHETERS (CONCRETE ARCH AND FABRIC FRAME) ABER EXPOSURE TO SIMULATED, HIGH-YIELD, NUCLEAR BLAST. AFTER THE BLAST, THE CHEMICAL FILTERS PASSED STANDARD ACCEPTANCE TESTS, BUT SHOWED SIGNS OF DEGRADATION. PENETRATION DTA IS PROVIDED FOR FREON 12 AND DIMETHYLMEHTYLPHOSPHONATE (DMMP).

TITLE: NUSSE3 MODEL DESCRIPTION
DATA SOURCE NO: CRDEC-TR-87046, ADB111944
AUTHOR: P. SAUCIER
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/05/01

COMMENTS: A MATHEMATICAL MODEL AND ITS COMPUTER PROGRAM ARE PRESENTED IN THIS REPORT. THE MODEL PREDICTS THE LIQUID AND VAPOR HAZARD FROM A UNIT OF CHEMICAL MUNITION RELEASED IN THE LOWER ATMOSPHERE. THE

MODEL PROVIDES A QUANTITATIVE DESCRIPTION OF THE CHEMICAL AGENT FROM THE MOMENT OF RELEASE UNTIL ALL THE LIQUID HAS EVAPORATED, OR THE VAPOR HAS DIFFUSED AWAY, OR BOTH. THE MODEL IS APPLICABLE TO ANY VOLATILE LIQUID BECAUSE IT ACCOUNTS FOR BOTH PRIMARY (AIRBORNE) EVAPORATION AND SECONDARY (SURFACE) EVAPORATION.

TITLE: A HUMAN ENGINEERING FIELD STUDY OF THE M732 AND M732E2 FUZES
DATA SOURCE NO: HEL-TM-11-87
AUTHOR: G.R. DETOGNI
ORIGINATING ORG: US ARMY HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THIS REPORT DISCUSSES A STUDY OF THE TIME REQUIRED TO SET THE M732 AND M732E2 FUZES UNDER SEVERAL FIELD CONDITIONS AND OF THE ERROR RATES AND MAGNITUDES ASSOCIATED WITH FUZE SETTING. TWELVE MALE PARTICIPANTS SET THE FUZES ON HORIZONTAL AND VERTICAL PROJECTILES UNDER SIMULATED DAYLIGHT AND NIGHTTIME CONDITIONS, FOR LONG AND SHORT RANGE FUZE SETTINGS THE OVERALL MEAN SETTING TIMES FOR THE M732 WHICH REQUIRES A TORQUING TOOL FOR SETTING, WERE 22% HIGHER FOR SHORT RANGE AND 76% HIGHER FOR LONG RANGE SETTINGS THAN THOSE OF THE M732E2 FUZE WHICH IS HAND SET. ALL PARTICIPANTS PREFERRED THE M732E2 FUZE. TEST PROCEDURES AND DATA ARE INCLUDED. THIS IS A BASELINE STUDY FOR FUTURE CHEMICAL WARFARE DEGRADATION STUDIES.

TITLE: ASSESSMENT OF PERFORMANCE OF TASKS BY PERSONNEL DRESSED IN CHEMICAL PROTECTIVE CLOTHING
DATA SOURCE NO: DPG/TA-87/15, ADB113026
AUTHOR: D.T. PARKER, R.L. STEARMAN, J.R. MONTGOMERY
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: TWO PROGRAMS AT US ARMY DUGWAY PROVING GROUND (DPG) ASSESSED THE PERFORMANCE OF MILITARY PERSONNEL IN PERSONAL CHEMICAL PROTECTIVE GEAR, AS COMPARED TO PERFORMANCE IN STANDARD BATTLEDRESS UNIFORM (BDU). MAINTENANCE TASKS INCLUDED FIELD MAINTENANCE OF A TANK AND ASSOCIATED EQUIPMENT, OF A MACHINE GUN, AND OF A CIRCUIT BOARD. ALSO, MISSION OPERATIONS WERE CONDUCTED BY AN ARMOR UNIT, A HAWK MISSILE UNIT, A NIGHT RECONNAISSANCE UNIT, AND A SIGNAL UNIT. OVERALL PERFORMANCE DEGRADATION WAS 20 TO 30 PERCENT FOR TROOPS OPERATING IN PROTECTIVE GEAR AS COMPARED TO OPERATING IN STANDARD BDU. NO DEGRADATION WAS FOUND FOR SOME TASKS. IMPROVEMENT IN PERFORMACE WAS OFTEN OBSERVED WITH REPETITION OF A TASK. THERE WERE ALSO NUMEROUS PROBLEMS ASSOCIATED WITH THE CHEMICAL

PROTECTIVE GEAR. REPORT DETAILS ARE CONTAINED IN "MAINTENANCE AND OPERATIONS IN A TOXIC ENVIRONMENT" AND "TROOP PERFORMANCE DEGRADATION IN MISSION-ORIENTED POSTURE (MOPP 4)".

TITLE: FRONT END ANALYSIS METHODOLOGY
DATA SOURCE NO: CRDEC-TR-87058, ADB113550
AUTHOR: R.L. ZUM BRUNNEN, M.I. HUTTON
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THIS REPORT PRESENTS A METHODOLOGY TO ASSESS AND RANK TECHNOLOGY ALTERNATIVES IN THEIR ABILITY TO MEET USER NEEDS WITHIN BROAD TECHNOLOGY AREAS. THE RESULTS OF THIS ANALYSIS, CALLED FRONT END ANALYSIS, AT THE US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER ARE USED BY TECHNOLOGY AREA MANAGERS TO DEVELOP MASTER PLANS FOR SHORT AND LONG RANGE PROGRAMS. APPENDIX CONTAINS AN EXAMPLE WHICH USES SELECTED PAGES FROM CRDC-CR-85032, "RECONNAISSANCE, DETECTION, AND IDENTIFICATION MASTER PLAN."

TITLE: TROOP PERFORMANCE DEGRADATION IN MISSION ORIENTED PROTECTIVE POSTURE LEVEL 4, ARMOR OPERATIONS I
DATA SOURCE NO: DPG-FR-86-909
AUTHOR: A.A. BARRY, G.B. STACK, B.C. HENRY, J.J. ENRIGHT, D.L. WELCH
ORIGINATING ORG: ANDRULIS RESEARCH CORPORATION, BETHESDA, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: IN THIS STUDY, MISSION DEGRADATION OF A TANK PLATOON WAS EXAMINED: SPECIFICALLY, THE ABILITY OF A TANK PLATOON TO PERFORM FOUR PHASES OF OPERATION: PLANNING AND PREPARATION FOR DEFENSE, MOVEMENT FROM AN ASSEMBLY AREA TO A BATTLE POSITION, ENEMY ENGAGEMENT, AND CONSOLIDATION. DEGRADATION WAS DETERMINED FOR MISSION PERFORMANCE AS A FUNCTION OF LEVEL OF PROTECTION (MISSION ORIENTED PROTECTIVE POSTURE 4 (MOPP 4) VERSUS BATTLEDRESS UNIFORM (BDU)), DURATION OF OPERATION AND LEVEL OF EXPERIENCE. IT WAS DETERMINED THAT PERFORMANCE OF SOME TASKS ASSOCIATED WITH DEFENSIVE OPERATIONS WERE DEGRADED, BUT THAT THE LEVELS OF DEGRADATION CAN BE REDUCED, IN MOST CASES, WITH ADDITIONAL EXPERIENCE IN MOPP4. DETAILED TEST DATA IS INCLUDED.

TITLE: SINGLE-TASK AND DUAL-TASK TRACKING: PROBLEMS IN THE SEMANTICS AND DYNAMICS OF ACTION
DATA SOURCE NO: HEL-TM-16-87
AUTHOR: V.G. CULOCK, D. BIRCH
ORIGINATING ORG: US ARMY HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/08/01

COMMENTS: THIS PAPER DESCRIBES A STUDY IN WHICH TEST SUBJECTS PERFORMED A PURSUIT, POSITION-CONTROL TRACKING TASK WHILE PERFORMING CONCURRENT CONGNITIVE TASKS. EXPERIMENTAL PROCEDURES, INSTRUCTIONS, RESULTS, DATA, AND CONCLUSIONS ARE PRESENTED IN THIS PAPER. DISCUSSION FOCUSES ON THE THEORETICAL AND EMPIRICAL DISTINCTIONS TO BE MADE AMONG THE CONCEPTS OF ACTION, ACTIVITY, PERFORMANCE, AND MOVEMENT, AND THE WAY IN WHICH MEASURES OF EACH MAY BE AFFECTED BY THE TASKS.

TITLE: EFFECTS OF CHEMICAL WARFARE DEFENSE ON AIRBASE MAINTENANCE OPERATIONS, PHASE II REPORT
AUTHOR: D.L. SHIPTON, K.R. BEILSTEIN, A.P. CHENZOFF, R.L. PITZER, R.P. JOYCE
ORIGINATING ORG: APPLIED SCIENCE ASSOCIATES, BUTLER, PA FOR US AIR FORCE HUMAN RESOURCES LABORATORY (AFHRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/16

COMMENTS: THIS REPORT DESCRIBES WORK PERFORMED AND DATA GATHERED DURING PHASE II OF AN EFFORT TO DEVELOP A METHODOLOGY FOR GATHERING AND ANALYZING DATA CONCERNING THE DEGRADATION OF MAINTENANCE TASK PERFORMANCE THAT RESULTS FROM USING CHEMICAL DEFENSE PROTECTIVE EQUIPMENT. CONTAINS DATA COLLECTED FROM TESTS AT HAHN AIR BASE IN WHICH TWENTY-SIX DIFFERENT F-16 MAINTENANCE TASKS WERE PERFORMED IN FATIGUES AND IN CHEMICAL GEAR. MCU-2/P MASK AND 7 MIL OR 14 MIL GLOVES WERE USED. PROBLEMS ENCOUNTERED (INCLUDING ENSEMBLE COMPROMISE) ARE IDENTIFIED. RECOMMENTDATIONS FOR IMPROVED TRAINING/EXERCISES, POLICY/PROCEDURE CHANGES, WORK AROUNDS, AND AIRCRAFT OR TOOL MODIFICATIONS ARE PRESENTED. RECOMMENDATIONS FOR IMPROVING THE CHEMICAL ENSEMBLE ARE ALSO PRESENTED. A TASK-RATING METHODOLOGY FOR PREDICTING TASK DEGRADATION AND ENSEMBLE COMPROMISE IS PRESENTED.

TITLE: M258A1/M58A1 DECONTAMINATING KIT CASE AND COVER INTERFACE ANALYSIS
DATA SOURCE NO: CRDEC-TR-87024, ADB110399
AUTHOR: J.F. CARTELLI
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: THIS IS A REPORT OF A STUDY TO EXAMINE PROBLEMS ASSOCIATED WITH OPENING M258A1 PERSONAL DECONTAMINATING KITS AND M58A1 TRAINING AID PERSONAL DECONTAMINATING KITS TO DETERMINE THE ACTION NECESSARY TO IMPROVE THE FIT OF THE CASES AND COVERS. A HUMAN FACTORS ASSESSMENT AND A MECHANICAL PULLING TEST WERE USED TO EVALUATE THE ACCEPTABILITY OF THE PLASTIC PARTS OF THE CASES AND COVERS. RESULTS AND DATA ARE PRESENTED. FINDING INDICATE THAT THE FIT OF THE M258A1/M58A1 CASE AND COVER WOULD BE EFFECTIVELY CONTROLLED BY INCORPORATING A MECHANICAL PULLING TEST IN LIEU OF THE CURRENT TECHNICAL DATA PACKAGE (TDP) REQUIREMENTS.

TITLE: MILITARY VULNERABILITY WITH REGARD TO CHEMICAL ATTACKS
DATA SOURCE NO: FFI/RAPPORT-87/6002
AUTHOR: P.B. STOREBO, T. BJORVATTEN
ORIGINATING ORG: NORWEGIAN DEFENCE RESEARCH ESTABLISHMENT (NDRE), KJELLER, NORWAY
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/03/30

COMMENTS: DOCUMENT OUTLINES THE NORWEGIAN DEFENSE RESEARCH ESTABLISMENT (NDRE) MODEL "GAS RISK" WHICH SIMULATES CHEMICAL ATTACKS AGAINST MILITARY TARGETS USING ARTILLERY SHELLS. A BRIEF OVERVIEW OF THE MODEL IS PRESENTED AND CONTAINS INPUT DATA, TARGET DATA, ALARMS, SHELTERS, PERSONNEL, WEATHER DATA, TERRAIN DATA, GENERAL FLOW DIAGRAMS, AND OUTPUT DATA IN THE FORM OF ALARM TIMES AND EXPOSURES. IT CAN BE MODIFIED FOR BOMBS AND SPRAY. CALCULATES DEPOSITION, DISPERSION AND DOSAGE.

TITLE: EFFECTS OF AIRCRAFT DELIVERY MODE ON CHEMICAL BOMB EFFECTIVENESS
DATA SOURCE NO: DPG/TA-87/06, ADB113155
AUTHOR: M. CHARLTON, R. KOCH, S. LEE, D. PELTON
ORIGINATING ORG: GEOMET TECHNOLOGIES INC., GERMANTOWN, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/01

COMMENTS: THIS REPORT PRESENTS A COMPARATIVE STUDY OF THE RELATIVE EFFECTIVENESS OF AIRCRAFT-DELIVERED CHEMICAL BOMBS AS A FUNCTION OF DELIVERY MODE, EMPLOYING THE JOINT MUNITIONS EFFECTIVENESS MANUAL/AIR-TO-SURFACE (JMEM/AS) OPEN END METHODS COMPUTER PROGRAMS.

VARIATIONS IN RELEASE ALTITUDE, DIVE ANGLE, NUMBER OF G'S (GRAVITIES) PULLED, AND INTERVALOMETER SETTING WERE USED TO ASSESS THE MODE OF DELIVERY REQUIRED FOR OPTIMUM BOMB SPACING FOR MAXIMUM EFFECTIVENESS ON VARIOUS SIZE TARGETS. SINGLE MOST IMPORTANT FACTOR AFFECTING CASUALTY PRODUCTION IS THE ANGLE OF BOMB TRAJECTORY, WITH LOWER ANGLES PRODUCING LESS EFFECTIVE DELIVERIES. MODEL INPUTS AND OUTPUTS ARE PRESENTED AND DISCUSSED.

TITLE: POSSIBLE APPLICATION OF BIOTECHNOLOGY TO THE DEVELOPMENT OF BIOLOGICAL AGENTS BY POTENTIAL ENEMIES
DATA SOURCE NO: CRDEC-SP-87019, ADB113338
AUTHOR: W.E. WHITE
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: DOCUMENT IS A REVIEW OF THE NEW DEVELOPMENTS IN BIOTECHNOLOGY, HYBRIDOMAS, FERMENTATION, AND GENETICS WHICH PROVIDE SCIENTIFIC BASIS FOR DEVELOPING NEW BIOLOGICAL AGENTS AND FOR MODIFYING EXISTING ONES. A BRIEF DESCRIPTION OF THE DISCIPLINES THAT COLLECTIVELY CONSTITUTE BIOTECHNOLOGY AND THE POTENT APPLICATION TO OLD AND NEW AGENTS IS PRESENTED. NO ANALYSIS OF THE TECHNICAL EXPERTISE OF POTENTIAL ENEMIES OR ONGOING MILITARY RESEARCH IS PRESENTED.

TITLE: DECON MASTER PLAN EXECUTIVE SUMMARY
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD AND US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, AL
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS IS A BRIEF OVERVIEW OF A STRATEGY (OR ROADMAP) TO FIELD OPTIMUM DECONTAMINATION TECHNOLOGIES IN MINIMUM TIME. REPRESENTATIVES OF US ARMY TRAINING DOCTRINE COMMAND (TRADOC) PROVIDED DECONTAMINATION REQUIREMENTS. CURRENT, DEVELOPMENTAL, AND FUTURE TECHNOLOGIES WERE ASSESSED WITH RESPECT TO THEIR ABILITY TO MEET REQUIREMENTS. THE ASSESSMENT WAS PERFORMED BY BATELLE, COLUMBUS LABORATORIES, THE US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), AND SEVERAL MAJOR UNIVERSITIES. A DETAILED MASTER PLAN IS AVAILABLE AS A SEPERATE REPORT. THIS EXECUTIVE SUMMARY FOUND THAT CURRENT SYSTEMS AND THOSE IN DEVELOPMENT WITH NOT MEET ALL DECONTAMINATION NEEDS. ITEMS TO BE FIELDED WILL INCLUDE: AN EMULSION BSED DECONTAMINATION SYSTEM FOR DELIBERATE DECONTAMINATION, A COATING SYSTEM FOR HASTY DECONTAMINATION, AND A SORBENT SYSTEM FOR BASIC SOLDIER SKILLS USE.

TITLE: DEVELOPMENT OF A CHEMICAL DEFENSE DATA BASE
DATA SOURCE NO: AFWAL-TR-87-4053
AUTHOR: J.J. MCNEELY, R.A. GUBIOTTI, P.E. BAILEY, J.P. PFAU, D.J. BOOTON, P.E. HINDS, T.M. MILLER, K.J. JOHANNS, E.R. ZAMEJC, S.M. TAUSCHEK, B.S. BECHTEL
ORIGINATING ORG: BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OH FOR US AIR FORCE WRIGHT AERONAUTICAL LABORATORIES (AFWAL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/01

COMMENTS: REPORT DISCUSSES THE DEVELOPMENT OF A CHEMICAL DEFENSE DATA BASE WHICH WOULD PROVIDE EQUIPMENT DESIGNERS WITH THE DATA NEEDED TO ENSURE CHEMICAL WARFARE (CW) SURVIVABILITY OF AIRCRAFT AND GROUND SUPPORT EQUIPMENT. DATA DETAILING THE EFFECTS OF CW AGENTS AND ATTENDANT DECONTAMINANTS UPON VARIOUS AIRCRAFT/GROUND EQUIPMENT WERE COLLECTED AND ORGANIZED INTO A COMPUTERIZED DATA BASE. REPORT DISCUSSES DATA BASE DEVELOPMENT, TESTING, AND SAMPLE USAGE. LIMITED NUMBERS OF DOCUMENTS ARE CURRENTLY AVAILABLE IN THE DATA BASE DUE TO TIME CONSTRAINTS ON EXTRACTING TEST DATA, TEST CONDITIONS AND TEST RESULTS ON MULTIPLE MATERIEL SAMPLES.

TITLE: PERSONAL COMPUTER PROGRAM FOR CHEMICAL HAZARD PREDICTION (D2PC)
DATA SOURCE NO: CRDEC-TR-87021, ADA177622
AUTHOR: C.G. WHITACRE, J.H. GRINER, M.M. MYIRSKI, D.W. SLOOP
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS REPORT PRESENTS A PERSONAL COMPUTER (D2PC) WHICH ESTIMATES THE CHEMICAL DOWNWIND HAZARD IN TERMS OF PEAK VAPOR CONCENTRATION OR A ACCUMULATED DOSAGE. INPUT PARAMETERS, SAMPLE PROBLEMS, METHODOLOGY, AND PROGRAM LISTINGS ARE GIVEN.

TITLE: INVESTIGATION OF COLD WEATHER AEROSOL FILTRATION PERFORMANCE OF FACE MASK FILTERS
DATA SOURCE NO: CRDEC-CR-87081
AUTHOR: K.W. LEE, L.A. CURTIS
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THE FILTRATION PERFORMANCE OF THE C2 FILTER CANISTER AND THE M13A2 FILTER WAS INVESTIGATED UNDER COLD WEATHER CONDITIONS TO ASSESS THE EFFECTS OF BOTH LOW TEMPERATURES AND HIGH RELATIVE HUMIDITY ON THE AEROSOL FILTRATION EFFICIENCY. THE STUDY RESULTS INDICATE THAT FILTER PERFORMANCE DOES NOT CHANGE NOTICEABLY AT COLD TEMPERATURES. HIGH RELATIVE HUMIDITY IN COLD WEATHER DOES NOT ADVERSELY AFFECT THE FILTER PERFORMANCE.

TITLE: ARCTIC THREAT ASSESSMENT
DATA SOURCE NO: CRDEC-CR-87102
AUTHOR: M.M. STANSBURY, D.F. METZ, J.E. BRUNO, R.E. MCNALLY
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORPORATION, MCLEAN, VA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/01

COMMENTS: THE OBJECTIVE OF THE ARTIC THREAT ASSESSMENT TASK WAS TO SIMULATE THE CHEMICAL HAZARD IN AN ARTIC ENVIRONMENT. NUSSE3 (THE NON-UNIFORM SIMPLE SURFACE EVAPORATION MODEL, VERSION 3) AND VEHW (THE MOVING VEHICLE-WEATHERING MODEL) INPUT PARAMETERS WERE DETERMINED TO EVALUATE CHEMICAL AGENT PERFORMANCE IN ARTIC CONDITIONS. THREAT SITUATIONS WERE DEVELOPED FOR AGENT/MUNITION COMBINATIONS AND DISSEMINATION CHARACTERISTICS. COMPARISONS WITH THE PREDICT (NORWEGIAN) MODEL WERE MADE. SARIN (GB), SOMAN (GD), THICKENED SOMAN (TGD), MUSTARD (HD) AND THICKENED MUSTARD (THD) WERE USED IN BOMBS, MISSILES AND ARTILLERY SHELLS. TABULAR DATA INCLUDES HALF LIFE, PERSISTENCE, TOTAL DEPOSITION AND AREA COVERAGE FOR THE AGENT/WEAPON SYSTEMS COMBINATIONS.

TITLE: CHEMICAL TECHNOLOGY LITERATURE SURVEY
DATA SOURCE NO: TDCK-CT-254, ADB109601
ORIGINATING ORG: TECHNISCH DOCUMENTATIE EN INFORMATIE CENTRUM, VOOR DE, KRIJGSMACHT, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: THIS DOCUMENT PRESENTS ENGLISH-TRANSLATED ABSTRACTS OF DUTCH LITERATURE SURVEY. SUBJECTS INCLUDED ARE :MATERIALS TESTING (INCLUDING CORROSION BY DECONTAMUANTS), MATERIAL DESIGN, POLLUTION OBSERVATION AND CONTROL, AIRCRAFT DESIGN AMONG OTHERS.

TITLE: DESIGN AND DEVELOPMENT OF A CHEMICALLY HARDENED BANDAGE COVER, AMD-1
DATA SOURCE NO: ADB109862
AUTHOR: B.A. METZ, A.B. PARSONS, C.L. GEARY, R.L. MARKHAM
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR AEROSPACE MEDICAL DIVISION, BROOKS AFB, TX CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: THIS RESEARCH EFFORT OFJECTIVE WAS TO DESIGN, EVALUATE, AND FABRICATE A CHEMICALLY HARDENED ONE-TIME-USE, DISPOSABLE DAMAGE COVER TO PROTECT A BANDAGE AREA ON AN INJURED INDIVIDUAL FROM LIQUID CHEMICAL AGENTS. MANY APPROACHES WERE EVALUTED UNDER THE FOLLOWING CRITERIAL: COVER THE DAMAGE AND IMMEDIATE AREA; PROTECT FROM LIQUID AGENT FOR 2 TO 3 HOURS; CAPARLE OF SELF OR BUDDY-APPLIED; BE USABLE IN MISSION ORIENTED PROTECTIVE POSTURE 4 (MOPP 4); FIT INSIDE THE FIRST AID KIT; FUNCTION UNDER A WIDE AWAY OF ENVIROMENTAL CONDITIONS; AND FIT ANY PART OF THE ANATOMY. THE CHOSEN DESIGN IS A FILM WHICH COVERS THE CURRENT GOVENMENT FURNISHED EQUIPMENT (GFE) BANDAGE.

TITLE: THE ENEMY USED CHEMICAL WEAPONS (CW)
DATA SOURCE NO: AFMIC-HT-010-87, ADB109927
AUTHOR: S. GERAS'KIN
ORIGINATING ORG: US ARMED FORCES MEDICAL INTELLIGENCE CENTER (AFMIC), FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/16

COMMENTS: TRANSLATION OF A RUSSIAN DOCUMENT DESCRIBING THE TRAINING OF SOVIET GROUND TROOPS IN ATTACKING A DEFENDED POSITION WITH THE DEFENDER'S USING CHEMICAL WARFARE (CW) WEAPONS. DISCUSSED ARE LESSONS ON MASK FAILURE, SAFE EXPOSURE TIMES AND OPERATIONS IN A CW ENVIROMENT. THREAT AGENTS THE SOVIET TROOPS FACED WERE CYANOGEN CHLORIDE (CK) AND HYDROCYANIC ACID.

TITLE: NEW PROCEDURES FOR A DDH 280 AFT CLEANSING STATION
DATA SOURCE NO: DRES-SM-1103, ADB110124
AUTHOR: W.R. DYCK, B.J. WENNER
ORIGINATING ORG: DEFENCE RESEARCH ESTABLISHMENT SUFFIELD (DRES), RALSTON, ALBERTA, CANADA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: NEW ENTRY PROCEDURES FOR THE AFT CLEANSING STATION OF A DDH 280 CLASS DESTROYER (CANADIAN) WERE DEVELOPED AFTER

MODIFICATIONS WERE MADE TO THE STATION. PROCEDURES FOR SELF-UNDRESSING, BUDDY-UNDRESSING AND 2-MAN CASUALTY HANDLING WERE EVALUATED USING 9 VOLUNTEERS IN FULL INDIVIDUAL PROTECTIVE ENSEMBLE (IPE). TIMES FROM AIRLOCKS ENTRY TO START OF UNDRESS, ENTRY TO THE SHOWER, AND EXIT FROM THE DRYING AREAS WERE RECORDED. THE TESTS WERE MAINLY FOR EVALUATION OF CLEANSING STATION LAYOUT AND MATERIALS HANDLING PROCEDURES. NO CHEMICAL AGENTS OR SIMUALANTS WERE USED.

TITLE: NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) CONTAMINATION THREAT TO ARMY FIELD WATER SUPPLIES
DATA SOURCE NO: BRDEC-2438, ADB109393
AUTHOR: D.C. LINDSTEN
ORIGINATING ORG: BELVOIR RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, FORT BELVOIR, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS REPORT DESCRIBES WHAT NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) THREAT TO ARMY FIELD WATER SUPPLIES, HOW WATER IS CONTAMINATED, THE EFFECTS ON MAN, AND CURRENT DETECTION/DECONTAMINATION CAPABILITIES. AN EXCELLENT SUMMARY OF WATER CONTAMINATION THREATS AND CURRENT RESPONSE CAPABILITIES IN A NBC ENVIRONMENT IS GIVEN.

TITLE: ANALYTICAL METHODS AND SAMPLING PROCEDURES FOR DECONTAMINATION AND CONTAMINATION AVOIDANCE STUDIES: A COMPILATION AND REFERENCE GUIDE TO SOURCE DOCUMENTS
DATA SOURCE NO: CRDEC-SP-87020, ADB1 4861
AUTHOR: J.D. LOPEZ, P.S. GRASSO, P.M. JONES
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/01

COMMENTS: RESULTS OF A LITERATURE SEARCH TO COMPILE AND INDEX SOURCE DOCUMENTS THAT CONTAIN SAMPLING METHODS OR ANALYTICAL PROCEDURES FOR AGENTS AND SIMULANTS. REPORTED DATA IS INDEXED BY AGENT/SIMULANT NAME AND AGAIN BY THE SPECIFIC EXPERIMENTAL APPLICATION, SAMPLING METHOD, OR ANALYTIC PROCEDURE. DESCRIPTIONS OF THE PROCEDURES FOUND ARE PRESENTED.

TITLE: ENVIRONMENTAL OVERVIEW OF COMMON INDUSTRIAL CHEMICALS WITH POTENTIAL APPLICATION IN THE BINARY MUNITIONS PROGRAM
DATA SOURCE NO: CRDEC-TR-87041

AUTHOR: K.M. BUCHI
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/07/01

COMMENTS: THIS REPORT PROVIDES RELEVANT BACKGROUND INFORMATION FOR THE ENVIRONMENTAL RISKS AND LEGAL REQUIREMENTS THAT GOVERN THE HANDLING AND RELEASE OF 15 COMMONLY AVAILABLE INDUSTRIAL CHEMICALS THAT CAN BE USED IN THE MANUFACTURE OF BINARY MUNITION COMPONENTS. CHEMICAL AND PHYSICAL PROPERTIES, MILITARY AND INDUSTRIAL APPLICATIONS, ENVIRONMENTAL LAWS AND REGULATIONS, TOXICOLOGY, MUTAGENICITY, REPRODUCTIVE EFFECTS, TUMORIGENICITY, AQUATIC TOXICITY, PHYTOTOXICITY, HUMAN EXPOSURE CRITERIA, CHEMICAL REACTIVITY, ENVIRONMENTAL FATE, SPILL AND DISPOSAL, AND LITERATURE CITES ARE PROVIDED FOR ACETIC ACID, AMMONIA, 2-DIISOPROPYLAMINOETHANOL, DIMETHYL DISULFIDE, DIMETHYL METHYLPHOSPHONATE, ETHANOL, HYDROGEN FLUORIDE, ISOBUTANE, ISOPROPANOL, ISOPROPYLAMINE, NATURAL GAS, PHOSPHORUS TRICHLORIDE, PYRIDINE, SODIUM HYDROXIDE, AND THIONYLCHLORIDE.

TITLE: PRELIMINARY DEVELOPMENT OF A LARGE EQUIPMENT CLEANING AND NBC DECONTAMINATION
DATA SOURCE NO: CRDEC-CR-87104
AUTHOR: T.J. CARPENTER, J.J. REIDY
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/01

COMMENTS: REPORT ON A STUDY TO DEVELOP A PRELIMINARY DESIGN OF AN AUTOMATED LARGE EQUIPMENT CLEANING AND DECONTAMINATION FACILITY USING EXISTING EQUIPMENT WHEREVER POSSIBLE. THIS FACILITY IS TO BE A SEMI-FIXED FACILITY USING AQUEOUS METHODS FOR CLEANING AND DECONTAMINATION. ANALYSES WERE PERFORMED TO DETERMINE THE MOST EFFICACIOUS MODES OF ACTION FOR CLEANING AND DECONTAMINATION PRIOR TO THE PRELIMINARY DESIGN DEVELOPMENT. A MARKET SURVEY METHODS FOR CLEANING AND DECONTAMINATION PRIOR TO THE PRELIMINARY DESIGN DEVLOPMENT. A MARKET SURVEY WAS ALSO PERFORMED TO IDENTIFY EXISTING EQUIPMEN . PRELIMINARY DESIGN CONSISTS OF TWO SEPARATE SYSTEMS: A CLEANING SYSTEM AND A DECONTAMINATION SYSTEM. CURRENT EQUIPMENT AVAILABLE WAS RANKED ACCORDING TO ITS EXPECTED EFFECTIVENESS AND SUPPORT REQUIREMENTS.

TITLE: RAPID RUNWAY REPAIR, AREA GROUP MULTIPLE-CRATER REPAIR TEST REPORT
DATA SOURCE NO: BDM/TAFB-85-005, AD0112923

AUTHOR: G.O. BOECKMAN, T.J. DENT, B.A. WALTON
ORIGINATING ORG: THE BDM CORPORATION, MCLEAN, VA, FOR US AIR FORCE ENGINEERING AND SERVICES CENTER (AFESC), TYNDALL AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS REPORT DISCUSSES A TEST CONDUCTED AT EGLIN AFB, FL, TO EVALUATE A NEW RAPID RUNWAY REPAIR (RRR) AREA GROUP ORGANIZATION, TRAIN THE GROUP FOR SALTY DEMO AND TEST A NEW FLOOD LIGHT SYSTEM. CRATER REPAIR TEAM, COMPLETED MULTIPLE-CRATER REPAIRS USING THE FIBERGLASS MAT REPAIR CONCEPT. PERFORMANCE TIMES WERE COMPARED WITH COMPUTER MODEL RESULTS. SPALL REPAIRS WERE PERFORMED USING A HAND MIX, SILIKAL-TYPE METHOD. DAY AND NIGHT REPAIRS WERE COMPARED. FIVE POLYURETHANE-RAPAIRED SPALLS WERE TRAFFICKED FOR 100 PASSES WITH AN F-15 LOADCART. APPENDICES PROVIDE REPAIR PROCEDURES AND TEST DATA.

TITLE: ANNOTATED BIBLIOGRAPHY OF PSYCHOMOTOR TESTING
DATA SOURCE NO: AAMRL-TR-87-019, ADA181694
AUTHOR: C. ERVIN
ORIGINATING ORG: ANTHROPOLOGY RESEARCH PROJECT, INC., YELLOW SPRINGS, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/03/01

COMMENTS: THIS DOCUMENT IS AN ANNOTATED BIBLIOGRAPHY OF 67 PUBLICATIONS IN THE FIELD OF PSYCHOMOTER TESTING. THE COLLECTION INCLUDES TECHNICAL REPORTS, JOURNAL ARTICLES, PAPERS PRESENTED AT SCIENTIFIC MEETINGS, BOOKS AND CONFERENCE PROCEEDINGS. THE PUBLICATIONS WERE ASSEMBLED AS PRELIMINARY WORK IN THE DEVELOPMENT OF A DEXTERITY TEST BATTERY DESIGNED TO MEASURE THE EFFECTS OF CHEMICAL DEFENSE TREATMENT DRUGS.

TITLE: AIR FORCE TROOP ISSUE FOOD OPERATIONS IN AN NBC ENVIRONMENT, VOLUME I: SYSTEMS ANALYSIS OF TROOP ISSUE OPERATIONS IN AN NBC ENVIRONMENT
DATA SOURCE NO: NATICK/TR-87/011L, ADB109879
AUTHOR: K.M. SCHROEDER, R.C ROSENKRANS, A.V. CARDELLO, G. SILVERMAN, R. MILLEN, O. MALLER
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: TROOP ISSUE WAREHOUSES HAVE BEEN IDENTIFIED AS

BEING DEFICIENT IN SAFEGAURDING AGAINST NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) THREATS. THIS REPORT PERFORMS NBC THREAT ANALYSES AND IDENTIFIES VULNERABILITIES TO ISSUE FOOD OPERATIONS. RECOMMONDATIONS INCLUDE: INCREASING PERSONNEL AWARENESS OF THE NBC THREAT; INTEGRATING NBC DEFENSIVE POSTURE PLANS WITH EXISTING POSTURE PLANS; STRESSING CONTAMINATION AVOIDANCE; USING COMMISSARY PERSONNEL EFFECIENTLY; AND DEVELOPING CONTINUGENCY PLANS SPECIFIC TO EACH AIR BASE'S NEEDS.

TITLE: AIR FORCE TROOP ISSUE FOOD OPERATIONS IN AN NBC ENVIRONMENT, VOLUME II: GUIDE FOR TROOP ISSUE/COMMISSARY WAREHOUSE OPERATIONS AND PROCEDURES IN AN NBC ENVIRONMENT
DATA SOURCE NO: NATICK/TR-87/012L, ADB109820
AUTHOR: J.H. LITCHFIELD, W.T. MCCOMIS, B.C. GARRETT, W.E. RIDDLE
ORIGINATING ORG: BATTELLE-COLUMBUS LABORATORIES, COLUMBUS, OH FOR US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: DOCUMENT DESCRIBES EFFORTS TO PREPARE A GUIDE OF DETAILED SEQUENTIAL PROCEDURES AND INSTRUCTIONS FOR AIR FORCE TROOP ISSUE/COMMISSARY WAREHOUSE OPERATIONS IN A NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) ENVIROMENT. SINCE AIR FORCE TROOP ISSUE/COMMISSARY FACILITIES VERY WIDELY AMONG DIFFERENT BASES IN THE CONTINENTAL UNITED STATES (CONUS) AND EUROPE, THIS REPORT CONTAIN SPECIFIC INSTRUCTIONS FOR TROOP ISSUE/COMMISSARY WAREHOUSE OPERATIONS AND PROCEDURES IN AN NBC ENVIRONMENT, SUMMARY OF RESPONSIBILITIES OF SUBSISTENCE PERSONNEL UNDER NBC CONDITIONS, TASK FLOW CHARTS, DETECTORS READILY AVAILABLE TO US AIR FORCE, DEVELOPMENTAL BIOLOGICAL AND CHEMICAL CONTAMINATION DETECTION EQUIPMENT, AND DECONTAMINATION OF SPECIFIC ITEMS.

TITLE: CASUALTY EFFECTS FOR A HIGH EXPLOSIVE/CHEMICAL BOMB MIX
DATA SOURCE NO: DPG/TA-87/10
AUTHOR: S.D. THAYER, R.C. KOCH
ORIGINATING ORG: GEOMET TECHNOLOGIES, INC., GERMANTOWN, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/01

COMMENTS: THIS REPORT DESCRIBES THE FACTORS INVOLVED IN MIXED DELIVERY OF HIGH EXPLOSIVE (HE) AND CHEMICAL MUNITIONS. IT PRESENTS SOME PRELIMINARY CONCEPTS FOR THE MODELING APPROACH REQUIRED TO MEASURE THE EFFECTIVENESS OF MIXED USE. THE REPORT SUGGESTS THAT THE TWO MAIN SYNERPISTIC EFFECTS OF MIXED USE ARE: THE BREACHING OF ENCLOSURES HAVING COLLECTIVE PROTECTION SYSTEMS; AND DELAYING THE MASKING TIME AND

DECREASING THE EFFECTIVENESS OF THE MASK (I.E., INCREASING LEAKAGE) TO TROOPS IN THE OPEN. THE REPORT ALSO SUGGESTS THAT SIMULTANEOUS DELIVERY OF HE AND SOMAN (GD) IS MORE EFFECTIVE THAN TWO-STAGED DELIVERY.

TITLE: COMMANDER'S GUIDE FOR OPERATING IN A CHEMICAL ENVIRONMENT
AUTHOR: B. GARRETT, C. REICHOW
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR AIR BASE OPERABILITY SYSTEM MANAGEMENT OFFICE, EGLIN AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/01

COMMENTS: EXCELLENT OVERVIEW DESIGNED FOR USE BY COMMANDERS AND THEIR SENIOR WING STAFF. DISCUSSES THE CHEMICAL THREAT IN VERY GENERAL TERMS AND GIVES A SHORT SUMMARY OF THE SYMPTOMS, PROTECTION, AND ANTIDOTES FOR NERVE, BLISTER, CHOKING, AND BLOOD AGENTS. AFTER A BRIEF DISCUSSION OF CURRENT CHEMICAL DEFENSE CAPABILITIES IT DISCUSSES OPERATIONAL CONSIDERATIONS FOR TYPICAL MAIN OPERATING BASES. IT INCLUDES THOUGHTS ON COLLECTIVE PROTECTION (CHANGING SHIFT TIMES TO MINIMIZE WAITS FOR PROCESSING IN TO THE SHELTER); LOGISTICAL CONSIDERATIONS (WHEN TO RESUPPLY WATER AND DIESEL FUEL, HOW TO PLAN FOR SANITARY FACILITIES); MEDICAL AND HEALTH PROBLEMS (WHEN TO DISTRIBUTE ANTODITES); AND CONTAMINATION CONTROL AND AVOIDANCE (WHAT TO USE WHEN YOU DO NOT HAVE SORBENT POWDERS) MANY MORE THOUGHTS ARE INCLUDED UNDER EACH TOPIC.

TITLE: MODEL TO DESCRIBE PENETRATION OF SKIN BY SORBED LIQUIDS IN CONTACT-HAZARD SITUATIONS
DATA SOURCE NO: CRDEC-CR-87100
AUTHOR: E.F. PHILPOT, D.P. SEGERS, J.D. STROBEL
ORIGINATING ORG: SOUTHERN RESEARCH INSTITUTE, BIRMINGHAM, AL FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/01

COMMENTS: DISCUSSES DEVELOPMENT OF A MODEL FOR PENETRATION OF SKIN BY LIQUIDS ACQUIRED FROM CONTACT WITH CONTAMINATED SURFACES. MODEL FOLLOWS FICK'S LAWS OF DIFFUSION, AND USES STEADY-STATE AND NON-STEADY STATE EQUATIONS. CONSIDERS THE CHEMICAL DESORPTION OF LIQUID FROM POLYMERIC MATERIALS, SURFACE-TO-SKIN TRANSFER, AND SKIN PENETRATION. LACK OF SUFFICIENT EXPERIMENTAL DATA PREVENTED VALIDATION OF THE CONTACT-HAZARD MODEL, AND DATA NEEDED FOR INPUT WERE VERY LIMITED. WAS VALUABLE FOR PREDICTING MAXIMUM CONTACT HAZARD ASSOCIATED WITH SOME COMBINATIONS OF CHEMICAL AGENT AND MILITARY PAINT UNDER CERTAIN CONDITIONS. EXCELLENT BIBLIOGRAPHY.

TITLE: A POTENTIAL FIELD EXPEDIENT TEST FOR FACE MASK INTEGRITY
DATA SOURCE NO: CRDEC-TR-88012
AUTHOR: P.N. KRISHNAN, A. BIRENZVIGE, E.J. POZIOMEK
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/10/01

COMMENTS: A STUDY WAS CONDUCTED TO DETERMINE THE FEASIBILITY OF DEVELOPING A FIELD EXPEDIENT METHOD TO TEST THE INTEGRITY OF A FACE MASK. CURSORY OBERVATION INDICATES THAT TOBACCO SMOKE ODOR CAN PROVIDE A PROTECTION FACTOR ON THE ORDER OF 3000 WHICH REPRESENTS A POTENTIALLY SIGNIFICANT IMPROVEMENT OVER THE PROTECTION FACTOR PROVIDED BY ISOAMYL ACETATE (BANANA OIL), WHICH IS OF THE ORDER 500 OR LESS.

TITLE: SALTY DEMO RAPID RUNWAY REPAIR CAPABILITY DEMONSTRATION, VOLUME II OF II
DATA SOURCE NO: ESL-TR-85-53, ADB113324
AUTHOR: J.J. GEARHART, T.J. DENT, J.A. BAYLIFF, O. SONSTEBY, C.P. NEUSWANGER, W. JANECEK, M.J. WILSON, D.L. READ, R.E. PATTERSON, J.E. HOBBS, J. EVANS, R. MOATS, M. HAP
ORIGINATING ORG: THE BDM CORPORATION, MCLEAN, VA, FOR US AIR FORCE ENGINEERING AND SERVICES CENTER (AFESC), TYNDALL AFB, FL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: VOLUME II OF REPORT CONTAINS THE APPENDICES TO THE BASIC REPORT. DISCUSSES THE ALTERNATE LAUNCH AND RECOVERY SURFACE (ALRS); PROVIDES MOULAGE PLACEMENT DATA; RAW CRATER SIZE AND ELEVATION DATA; SPALL LOCATIONS AND SIZES; STRUCTURAL CAP FALLING WEIGHT DEFLECTOMETER READINGS; F-4 AIRCRAFT ROUGHNESS CRITERIA; AND F-4 PEAK STRUCTURAL LOADS.

TITLE: EVALUATION OF CHEMICAL ATTACK WARNING SYSTEM ALTERNATIVES FOR FIXED SITES
AUTHOR: A.H. SAMUEL, B.J. TULLINGTON
ORIGINATING ORG: BATTELLE, COLUMBUS DIVISION, WASHINGTON OPERATIONS, WASHINGTON, DC FOR US ARMY RESEARCH OFFICE (ARO), RESEARCH TRIANGLE PARK, NC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/06

COMMENTS: CHEMICAL DETECTION IDENTIFICATION OF FOUR FIXED ARMY AND AIR FORCE SITES. THESE SITES ARE: EQUIPMENT MAINTENANCE CENTER, KAISERSLAUTERN; ARMY DEPOT, GEMERSHEIM; AMMUNITION STORAGE FACILITY, KRIEGSFELD; AND SPANGDAHLEM, AIR BASE. ALL SIGHTS ARE IN THE

FEDERAL REPUBLIC OF GERMANY. EACH IS EVALUATED TO COMPARE ON-SITE (CHEMICAL AGENT DETECTORS ON A SITE AFTER IT IS ATTACKED) VERSUS OFF-SITE (THEATER-WIDE RADAR NET) WARNING. THE TRADE-OFF EXAMINES THE RATIO BETWEEN EXTRA MAN-MINUTES IN FULL PROTECTIVE POSTURE (COST ASSOCIATED WITH OFF-SITE WARNING) AND EXTRA CASUALTIES (ON-SITE COST). THE STUDY USES CHEMICAL SCENARIOS PROVIDED BY THE CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), AND ANALYSIS OF INSTRUMENTATION PROVIDED BY VERAC, INC. THE ANALYSIS FOUND THAT ON-SITE WARNING TO BE GENERALLY FAVORED, BUT WITH A MULTITUDE OF CAVEATS.

TITLE: JOINT-SERVICE FIXED SITE DETECTION AND WARNING SYSTEM (FSDWS), TRADEOFF DETERMINATION TRADEOFF ANALYSIS AND BEST TECHNICAL APPROACH (DRAFT)
DATA SOURCE NO: R-010-87(REV1)
ORIGINATING ORG: VERAC, INC., SAN DIEGO, CA FOR CHEMICL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/02/01

COMMENTS: THIS DRAFT REPORT DESCRIBES A TRADEOFF DETERMINATION, ANALYSIS AND BEST TECHNICAL APPROACH (BTA) OF THE JOINT-SERVICE FIXED SITE DETECTION AND WARNING (FSDW) SYSTEM. DETECTOR NETWORKS OF A SINGLE TYPE OF DETECTOR AND A COMBINATION OF DETECTORS ARE CONSIDERED. DETECTORS STUDIED ARE: AUTOMATIC LIQUID AGENT DETECTORS (ALAD), AUTOMATIC CHEMICAL AGENT DETECTOR AND ALARMS (ACADA) AND THE XM21 REMOTE DETECTOR. METEOROLOGICAL DATA NECESSARY TO SUPPLEMENT THE DETECTOR INFORMATION TO PERFORM THREAT MOVEMENT AND HAZARD PREDICTION DURING AND AFTER AN ATTACK ARE ALSO DISCUSSED AS WELL AS THE COMPUTER ARCHITECTURE AND COMMUNICATION LINKS REQUIRED TO SUPPORT THE FSDW SYSTEM.

TITLE: CONCEPT EVALUATION PROGRAM (CEP) TEST OF CHEMICAL, BIOLOGICAL, HARDENED SHELTER (CBHS) SYSTEM, (MEDICAL APPLICATION), ECHELONS ABOVE DIVISION (EAD)
DATA SOURCE NO: AHS-2-86, ADB103808
AUTHOR: C. PREVO, W.R. HATCHER
ORIGINATING ORG: ACADEMY OF HEALTH SCIENCES, FORT SAM HOUSTON, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/09

COMMENTS: THIS TEST ASSESSED PROTOTYPE DESIGNS FOR THE CHEMICAL, BIOLOGICAL, HARDENED SHELTER (CBHS) SYSTEM, (MEDICAL APPLICATION), ECHELONS ABOVE DIVISION. IT PROVIDED USER INPUTS FOR FUTURE DESIGN IMPROVEMENTS, AND ASSESSED THE CBHS IN AN OPERATIONAL CONFIGURATION USING SELECTED DEPLOYABLE MEDICAL SYSTEMS (DEPMEDS) MEDICAL EQUIPMENT SETS. ALSO ASSESSED ARE SET UP AND STRIKING TIMES FOR HARDENED

VERSUS NON-HARDENED SHELTERS AND DATA FOR UTILITY SUPPORT TO HARDENED VERSUS NON-HARDENED SHELTERS.

TITLE: DESIGN AND ACQUISITION OF NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC), CONTAMINATION-SURVIVABLE SYSTEMS
DATA SOURCE NO: DOD INSTRUCTION 4245.13
AUTHOR: R.P. GODWIN
ORIGINATING ORG: OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/05

COMMENTS: PROVIDES GENERAL MANAGEMENT AND DOCUMENTATION REQUIREMENTS FOR THE SURVIVABILITY OF SYSTEMS DESIGNED AND ACQUIRED TO PERFORM MISSION ESSENTIAL FUNCTIONS IN A NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) ENVIRONMENT. STATES: NBC-CONTAMINATION-SURVIVABILITY SHALL BE INCLUDED IN THE DESIGN AND ACQUISITION OF SYSTEMS THAT MUST PERFORM MISSION ESSENTIAL FUNCTIONS IN AN NBC ENVIRONMENT". PROVIDES GENERALIZED PROCEDURES FOR COMPLYING WITH THE DEPARTMENT OF DEFENSE (DOD) INSTRUCTION. DEFINES A NEGLIGIBLE CONTAMINATION AS: "THAT LEVEL OF NBC CONTAMINATION THAT WOULD NOT PRODUCE MILITARILY SIGNIFICANT EFFECTS IN PREVIOUSLY UNEXPOSED AND UNPROTECTED PERSONS OPERATING OR MAINTAINING THE SYSTEM".

TITLE: CHEMICAL ATTACK WARNING STUDY
DATA SOURCE NO: SAIC-87/1510
ORIGINATING ORG: SCIENCE APPLICATIONS INTERNATIONAL CORPORATION, ANNAPOLIS, MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/06

COMMENTS: THIS STUDY EXAMINES THE FEASIBILITY OF ACCESSING RADAR DATA TO PROVIDE EARLY WARNING OF ATTACK (AND IN PARTICULAR CHEMICAL ATTACK) TO FIXED SITES IN THE FEDERAL REPUBLIC OF GERMANY (FRG). THE STUDY FOCUSED ON AIR DEFENSE COMMAND AND CONTROL (C2) SYSTEMS, RADAR SYSTEMS, AND COMMUNICATIONS CONNECTIVITY, PRESENT AND PLANNED. DATA ON RADARS, SOVIET MUNITIONS, COMMUNICATION LINKS FOR THE TACTICAL AIR COMMAND AND CONTROL SYSTEM (ACCS), AND CENTRAL EUROPE COMMAND STRUCTURE ARE PROVIDED. THE STUDY CONCLUDES THAT PRESENT EQUIPMENT IS NOT ADEQUATE TO PROVIDE SUFFICIENT WARNING, BUT GOOD ENOUGH EQUIPMENT MAY BE AVAILABLE BY THE MID-1990S. FURTHER STUDY IS RECOMMENDED.

TITLE: WING COMMANDER'S AIR BASE OPERABILITY (ABO) PLANNING CONSIDERATIONS GUIDE
DATA SOURCE NO: AF-PAMPHLET-360-2
ORIGINATING ORG: HEADQUARTERS, US AIR FORCE (USAF), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/09/28

COMMENTS: THIS PAMPHLET IDENTIFIES PLANNING CONSIDERATIONS WHICH SHOULD BE ADDRESSED WHEN DEVELOPING BASE LEVEL AIR BASE OPERABILITY (ABO) PLANS. THE PAMPHLET CONSISTS OF A SERIES OF CHECKLISTS. MAJOR HEADINGS INCLUDED IN THE GENERAL ABO CHECKLIST INCLUDE: DEFEND, SURVIVE, RECOVER, AND COMMUNICATIONS-COMPUTER SYSTEMS. FUNCTIONAL AREAS CHECKLIST ARE PROVIDED FOR: AIR BASE GROUND DEFENSE (ABGD), CAMOFLAGE, CONCEALMENT AND DECEPTION (CCD), CHEMICAL DETECTION, RAPID RUNWAY REPAIR (RRR), WATER, COLLECTIVE PROTECTION SYSTEMS (CPS), COMMUNICATIONS, EXPLOSIVE ORDINANCE DISPOSAL (EOD), MAINTENANCE, MEDICAL, MEDICAL SURVIVAL COLLECTIVE PROTECTION (SCPS-M), SUPPLY, AND TRANSPORTATION.

TITLE: DISASTER PREPAREDNESS: MISSION-ORIENTED PROTECTIVE POSTURE
DATA SOURCE NO: AFR-355-8
AUTHOR: N.S. HILL
ORIGINATING ORG: HEADQUARTERS, US AIR FORCE (USAF), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/05/01

COMMENTS: REGULATION PROVIDING GUIDANCE FOR SELECTING AND USING MISSION-ORIENTED PROTECTIVE POSTURES (MOPP) TO BALANCE INDIVIDUAL CHEMICAL AND BIOLOGICAL AGENT CONVENTIONAL MUNITION PROTECTION WITH THREAT, EQUIPMENT CAUSED DEGRADATION, AND MISSION URGENCY. IT APPLIES TO US AIR FORCE (USAF) ACTIVITIES, INCLUDING AIR NATIONAL GUARD AND AIR FORCE RESERVE, USING CHEMICAL WARFARE (CW) DEFENSE GROUND CREW ENSEMBLE. MOPP LEVELS ARE DEFINED; TASK TIME MULTIPLIERS AND ESTIMATED WORK TIMES AS A FUNCTION OF WORKLOAD, TEMPERATURES, HUMIDITY AND MOPP LEVELS ARE PROVIDED.

TITLE: ASSESSMENT OF THE CHEMICAL CONTAMINATION DENSITY BY MEANS OF LIQUID DETECTION PAPER
DATA SOURCE NO: PML-1987-C23
AUTHOR: P. STAM, R. VENNINK
ORIGINATING ORG: PRINS MAURITS LABORATORIUM, THE NETHERLANDS ORGANIZATION (TNO), RIJSWIJK, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: THIS REPORT DESCRIBES A METHOD OF USING DETECTION

PAPER IN A GRID PATTERN OVER AN AIR BASE TO ESTIMATE THE CHEMICAL CONTAMINATION DENSITY AFTER AN ATTACK WITH THICKENED CHEMICAL AGENT. THE CONTAMINATION DENSITY IS ESTIMATED FROM THE SIMULATED SPOT PATTERNS (SPOT SIZE AND NUMBER) ON M8 DETECTION PAPER. DETECTOR PAPER SPOT PATTERNS ARE ALSO USED TO DISCRIMINATE BETWEEN CONTAMINATED AND UNCONTAMINATED PERSONNEL ENTERING A COLLECTIVE PROTECTION FACILITY. DISCRIMINATION RESULTS ARE PRESENTED WITH ONE SEVENTY-FIVE MILLIMETER (MM) BY FIFTY MM DETECTION PAPER PER INDIVIDUAL AND WITH THREE PAPERS PER INDIVIDUAL. THE APPENDICIES PRESENT OVERVIEWS OF DEPOSITION MODELING EQUATION AND SOFTWARE DESCRIPTIONS.

TITLE: PRODUCIBILITY STUDY FOR IMPROVED CHEMICAL/BIOLOGICAL AGENT DECONTAMINANT (ICBAD) - C8 EMULSION
DATA SOURCE NO: CRDEC-CR-87080
AUTHOR: E. MEZEY, R. WYANT, M. HILLMAN, S. HARSH
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/01

COMMENTS: A MARKET EVALUATION OF DOMESTIC MANUFACTURERS OF CALCIUM HYPOCHLORITE DETERMINED THAT THREE POSSIBLE SUPPLIERS EXIST IN THE USA. SAMPLES OF THEIR PRODUCTS WERE COMPARED TO THE MATERIAL USED BY THE ARMY OF THE FEDERAL REPUBLIC OF GERMANY (FRG) TO PREPARE C8 EMULSION, USING THE FRG TECHNICAL DELIVERY SPECIFICATION TL (TDS) 6810-074. SIEVE ANALYSIS AND BULK DENSITY DETERMINATIONS WERE ALSO MADE. NONE OF THE DOMESTIC SUPPLIERS COULD MEET THE SPECIFICATION EVEN THOUGH ALL OF THEM COULD MEET THE AVAILABLE CHLORINE REQUIRED. A REVIEW OF THE CURRENT MANUFACTURING METHODS NOW BEING USED BY PPG INDUSTRIES, INC. AND OLIN CORPORATION SUGGESTS BOTH PROCESSORS COULD BE USED TO PRODUCE AN FRG-LIKE PRODUCT WITHOUT INTRODUCING EXTENSIVE CHANGES.

TITLE: MAINTENANCE OPERATIONS IN A MISSION-ORIENTED PROTECTIVE POSTURE
DATA SOURCE NO: DPG/TA-88/03
AUTHOR: J.R. MONTGOMERY
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/09/01

COMMENTS: THIS REPORT PRESENTS RESULTS OF TESTS COMPARING MAINTENANCE TASKS PERFORMED BY TROOPS IN THE BATTLE DRESS UNIFORM (BDU) AND TROOPS IN FULL MISSION-ORIENTED PROTECTIVE POSTURE (MOPP 4). THE DATA INDICATES THAT AT TEMPERATURES BELOW 29 DEGREES CELSIUS, MORE TIME WAS GAINED AS THE TASKS WERE REPEATED THAN WAS LOST BECAUSE OF MOPP.

ABOVE 29 DEGREES CELSIUS, HOWEVER, THE TROOPS GENERALLY STARTED BECOMING HEAT CASUALTIES. THE REPORT CONCLUDED THAT AT TEMPERATURES BELOW 29 DEGREES CELSIUS, WELL-TRAINED TROOPS DRESSED IN DRESSED IN MOPP GEAR COULD OUT-PERFORM WELL-TRAINED TROOPS DRESSED IN BDU, ALL OTHER FACTORS BEING EQUAL. DATA ON MOPP GEAR COMPROMISES DURING MAINTENANCE TASKS ARE ALSO PRESENTED.

TITLE: RESULTS OF PHYSIOLOGICAL MONITORING FOR THE 1985 P2NBC2 TESTS AT FORT KNOX, KENTUCKY
DATA SOURCE NO: USAARL-87-6
AUTHOR: F.S. KNOX, R. SIMMONS, R. CHRISTIANSEN, G. SIERING
ORIGINATING ORG: US ARMY AEROMEDICAL RESEARCH LABORATORY (USAARL), FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/01

COMMENTS: DOCUMENT PRESENTS THE PHYSIOLOGICAL RECORDINGS FROM FIELD TESTS OF ARMOR (TANK) PERSONNEL IN CHEMICAL PROTECTIVE GEAR. BASELINE WAS MISSION ORIENTED PROTECTIVE POSTURE 4 (MOPP 4) WITH GARMENT, OVERBOOTS, GLOVES, AND MASK. PHASE II TESTING WAS THE SAME AS PHASE I, BUT INCLUDED TUBE FOOD, A MODIFIED WATER SYSTEM, SEAT MODIFICATIONS, AND SUGGESTED STRATEGIES TO COPE WITH THE HEAT. PHASE III ADDED MICROCLIMATE COOLING VESTS OR OVER PRESSURE (VEHICLE DEPENDENT). EACH VEHICLE BECAME COMBAT INEFFECTIVE, BY DEFINITION, WHEN TWO OF THE FOUR CREWMEN LEFT FOR ANY REASON. THE STUDY FOUND NO MAJOR DIFFERENCE BETWEEN THE THREE PHASES IN TERMS OF PHYSIOLOGICAL PERFORMANCE FOR THE SUBJECTS, TASKS, AND ENVIRONMENTAL CONDITIONS STUDIED. TABULAR DATA SHOWS TEST DURATION, INDIVIDUAL EFFECTIVENESS DURATION, BODY CORE TEMPERATURE, AND REASON FOR BECOMING COMBAT INEFFECTIVE. PLOTS SHOW AMBIENT TEMPERATURE, AND HEART RATES FOR INDIVIDUALS BY VEHICLE TYPES.

TITLE: PROCEEDINGS, CHEMICAL/BIOLOGICAL OPERATIONS AND SURVIVABILITY SYMPOSIUM
ORIGINATING ORG: AMERICAN DEFENSE PREPAREDNESS ASSOCIATION (ADPA), ARLINGTON, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/10/27

COMMENTS: THIS REPORT CONTAINS THE PROCEEDINGS OF THE CHEMICAL/BIOLOGICAL (CB) OPERATIONS AND SURVIVABILITY SYMPOSIUM CONDUCTED AT THE US ARMY CHEMICAL SCHOOL, FORT MCCLELLAN, ALABAMA, IN OCTOBER 1987. TOPICS INCLUDED: LABORATORY PROTOCOLS FOR THE SELECTION AND EVALUATION OF MATERIALS USED IN CHEMICAL PROTECTIVE ENSEMBLES; MODEL TO DESCRIBE PENETRATION OF SKIN BY SORBED LIQUIDS IN CONTACT-HAZARD SITUATIONS; NOVEL FOAM DECONTAMINATION SYSTEM FOR AIRCRAFT EXTERIORS; MICROEMULSIONS CONTAINING REACTIVE DECONTAMINANTS (FORMULATION, EFFICACY, AND

OPTIMIZATION); COOLING OF PERSONNEL IN A TOTALLY ENCAPSULATING GARMENT; A REAL-TIME DECISION AID FOR ARMY AVIATORS IN A CHEMICAL WARFARE ENVIRONMENT (SAUTER); HAZARD GUIDE (HUTTON); SURVIVABLE COLLECTIVE PROTECTION SYSTEM - NAVY (SCPS-N); AND CHEMICAL AND BIOLOGICAL AGENT CLASS DETECTION USING BIOSENSORS.

TITLE: PROCEEDINGS JUNE 1986 54TH MILITARY OPERATIONS RESEARCH SYMPOSIUM (MORS)
DATA SOURCE NO: MORS--54
AUTHOR: E.P. BABCOCK, N.S. ADDISON
ORIGINATING ORG: MILITARY OPERATIONS RESEARCH SOCIETY, INC., ALEXANDRIA, VA
CLASSIFICATION: SECRET
DOCUMENT DATE: 87/05/01

COMMENTS: DOCUMENT CONTAINS THE PARTIAL PROCEEDINGS FOR THE MILITARY OPERATIONS RESEARCH SYMPOSIUM (MORS). INCLUDED ARE SELECTED PAPERS PRESENTED AT THE SYMPOSIUM, AND THE ABSTRACTS OF THE REMAINING PAPERS (ALSO PRESENTED). PAPERS OF INTEREST INCLUDE "A LIMITED ANALYSIS OF FACTORS AFFECTING PILOT PROFICIENCY," "DECONTAMINATION FRONT END ANALYSIS (DECON FEA)," SCENARIO DEVELOPMENT," AND "MORE OPERATIONAL REALISM IN THE MODELING OF COMBAT." ALSO INCLUDED ARE TWELVE ABSTRACTS FROM THE CHEMICAL WARFARE PROBLEMS WORKING GROUP (WG 18), AND FOURTEEN ABSTRACTS FROM THE COMBAT MODELS, GAMING AND SIMULATION WORKING GROUP (WG 29).

TITLE: JOINT OPERATIONAL TESTS OF U.S. RETALIATORY CAPABILITIES IN CHEMICAL WARFARE (JCHEM), VOLUME IA
DATA SOURCE NO: IDA-R-304-IA
AUTHOR: W.B. BUCHANAN, H.C. LYMN
ORIGINATING ORG: INSTITUTE FOR DEFENSE ANALYSIS (IDA), ALEXANDRIA, VA, FOR OFFICE OF THE SECRETARY OF DEFENSE, WASHINGTON, DC
CLASSIFICATION: SECRET
DOCUMENT DATE: 87/05/01

COMMENTS: THIS REPORT DETAILS U.S. CHEMICAL RETALIATORY CAPABILITIES WORLDWIDE. THE COMPLETE JCHEM (JOINT OPERATIONAL TESTS OF US RETALIATORY CAPABILITIES IN CHEMICAL WARFARE (CW)) REPORT IS IN THREE VOLUMES. THIS VOLUME, THE EXECUTIVE SUMMARY CONTAINS: THE JCHEM PROGRAM SUMMARY; CURRENT US CW OFFENSE POLICY; CONCLUSIONS AND RECOMMENDATIONS ON CW RETALIATORY CAPABILITY; CW RESOURCES; THEATER ASSESSMENTS FOR EUROPE, KOREA, AND SOUTHEAST ASIA; AND A LOGISTICS ASSESSMENT.

TITLE: JOINT OPERATIONAL TEST OF U.S. RETALIATORY CAPABILITIES IN CHEMICAL WARFARE, VOLUME IB
DATA SOURCE NO: IDA-R-304-IB
AUTHOR: W.B. BUCHANAN, H.C. LYMN
ORIGINATING ORG: INSTITUTE FOR DEFENSE ANALYSIS (IDA), ALEXANDRIA, VA FOR OFFICE OF THE SECRETARY OF DEFENSE, WASHINGTON, DC
CLASSIFICATION: SECRET
DOCUMENT DATE: 87/05/01

COMMENTS: THIS REPORT (VOLUME IB) OF THE U.S. CHEMICAL RETALIATORY CAPABILITIES ANALSYSIS (JCHEM) IS THE MAIN BODY OF VOLUME I AND CONTAINS THE ASSESSMENTS OF US CHEMICAL RETALIATORY CAPABILITIES IN EUROPE, KOREA, AND SOUTHWEST ASIA, AND THE LOGISTICS TRAIL IN THE CONTINENTAL US (CONUS). THIS VOLUME INCLUDES DETAILED ASSESSMENTS IN THESE THREE THEATERS; EMPLOYMENT OF CHEMICAL WARFARE (CW) WEAPONS BY TACTICAL UNITS; IMPACT ANALYSIS OF OFFENSIVE CW USE; LOGISTICS FLOW OF CHEMICAL MUNITIONS; MODEL (TACWAR) ASSESSMENTS OF IMPACT OF CW USE; AND A METHODOLOGY FOR CHEMICAL MUNITIONS USE.

TITLE: SOME REQUIREMENTS FOR OPERATIONAL BIOLOGICAL DEFENSE
DATA SOURCE NO: DPG/TA-87/20
AUTHOR: D.T. PARKER
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/09/01

COMMENTS: THIS IS A SUMMARY OVERVIEW OF THE STATE OF BIOLOGICAL WARFARE (BW) AS IT RELATES TO DEFENSE AGAINST BW AGENTS. DETECTION AND INHALATION PROTECTION ARE ESSENTIAL TO PREVENT INFECTION. INGESTION AND PERCUTANEOUS HAZARDS ARE MINIMAL. PARTICLE SIZE MAY BE A FACTOR IN HAZARD ASSESSMENT, AS IT RELATES TO PENETRATION OF PARTICLE FILTERS. DECONTAMINATION AND SECONDARY HAZARD REQUIRE FURTHER STUDY. NO TABULAR DATA IS IN THE DOCUMENT.

TITLE: THE IMPACT OF CB SURVIVABILITY ON ELECTRONIC SYSTEM DESIGNS
AUTHOR: T.H. SUTHERLAND
ORIGINATING ORG: HUGHES AIRCRAFT COMPANY, EL SEGUNDO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/10/27

COMMENTS: THIS REPORT DISCUSSES THE DESIGN OF ELECTRONIC COMPONENTS THAT MUST MEET NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) SURVIVABILITY REQUIREMENTS. IT CONSIDERS THE TYPES OF ELECTRONIC ASSEMBLIES IN TERMS OF COMPONENTS EXPOSED TO AN NBC ENVIRONMENT,

SURVIVABILITY REQUIREMENTS, HOW WELL CERTAIN MATERIALS CAN BE DECONTAMINATED, SYSTEM "HARDNESS" (HOW SENSITIVE IS THE SYSTEM TO LIQUIDS, EITHER AGENTS OR DECONTAMINANTS), AND COMPATIBILITY OF THE ELECTRONIC ASSEMBLY FOR REPAIR BY INDIVIDUALS WEARING PROTECTIVE ENSEMBLES. IT CONCLUDES THAT AGENTS MUST BE ABSOLUTELY KEPT OFF THE ELECTRONIC PORTION OF THE INTERIOR OF THE SYSTEM, EXTERNAL SENSORS SHOULD BE COVERED WITH AN EXTERNAL LIQUID-TIGHT BARRIER, EXTERNAL MATERIALS SHOULD SHED OR REPEL AGENTS, AND CRACKS (CREVICES) SHOULD BE ELIMINATED.

TITLE: NATO AIR FORCES GROUND CREW INDIVIDUAL PROTECTIVE EQUIPMENT PRESENT AND POTENTIAL FUTURE
AUTHOR: J. MEDEMA, P.P.M.M. WITTGEN
ORIGINATING ORG: PRINS MAURITS LABORATORY, THE NETHERLANDS ORGANIZATION (TNO), RIJSWIJK, THE NETHERLANDS
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/10/27

COMMENTS: THIS REPORT DISCUSSES CURRENT INDIVIDUAL PROTECTIVE EQUIPMENT (IPE) AND THE FACTORS WHICH AFFECT WEAR-TIME, EFFICIENCY OF PROTECTION AND CAPACITY OF THE AFFORDED PROTECTION. IT DISCUSSES IPE CAUSED PERFORMANCE DEGRADTION DUE TO MASKS (INCREASED BREATHING RESISTANCE) AND TO HEAT BUILD-UP (WORK/REST CYCLES) AT VARIOUS WORK RATES; TASK TIME DEGRADATION FOR INDIVIDUAL TASKS, DEGRADATION IN SORTIE GENERATION, AND THE CHEMICAL CHALLENGE TO AIR BASES. USING THE CURRENT IPE AS A BASELINE, THE AUTHOR COMPARES IMPROVEMENTS IN RESPIRATORY PROTECTION, BODY PROTECTION, HAND AND FOOT PROTECTION, AND LISTS SOME OF THE OPERATIONAL IMPLICATIONS RESULTING FROM THESE IMPROVEMENTS.

TITLE: AN ASSESSMENT OF CHEMICAL DECONTAMINATION IN THE COLD
AUTHOR: L.V. PARKER
ORIGINATING ORG: US ARMY COLD REGIONS RESEARCH AND ENGINEERING LABORATORY, HANOVER, NH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/10/27

COMMENTS: THIS PAPER CONSISTS OF A BRIEF SUMMARY OF AN EXTENSIVE LITERATURE REVIEW ON THE DECONTAMINATION OF CHEMICAL AGENTS ON THE WINTER BATTLEFIELD. THE REVIEW REVEALED LITTLE DATA ON CURRENT NEUTRALIZING DECONTAMINANTS (BLEACH OR SOLVENTS), OR PHYSICAL REMOVAL (HOT AIR, CLEANING, RINSING, OR NATURAL WEATHERING). EXPERIMENTS WITHIN THE PAST YEAR TESTED THE EFFICIENCY OF NEUTRALIZING DECONTAMINANTS, DRY POWDERS, AND ABSORBENT WIPES ON SURFACES IN THE COLD. RESULTS OF TESTS AT TWENTY-TWO DEGREES AND MINUS TWENTY-NINE DEGREES CELCIUS ARE GIVEN FOR PAINTED AND UNPAINTED SURFACES.

TITLE: PROCEEDINGS OF THE 1986 US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE RESEARCH, 18-21 NOVEMBER 1986, VOLUME I
DATA SOURCE NO: CRDEC-SP-87008
AUTHOR: M.D. RAUSA
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THIS VOLUME (I) CONTAINS REPORTS (PRESENTED AT THE 1986 US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE (CD) RESEARCH) ON THE TOPICS OF: DECONTAMINATION (EIGHTEEN REPORTS); PROTECTION (EIGHTEEN REPORTS); TOXICOLOGY AND PHARMACOLOGY (SIX REPORTS); DETECTION (TWENTY REPORTS); FLUID DYNAMICS (TEN REPORTS); AND MATERIALS (TEN REPORTS).

TITLE: PROCEEDINGS OF THE 1986 US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE RESEARCH, 18-21 NOVEMBER 1986, VOLUME II
DATA SOURCE NO: CRDEC-SP-87008
AUTHOR: M.D. RAUSA
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THIS VOLUME (II) CONTAINS REPORTS (FROM PAPERS AND POSTER SESSIONS PRESENTED AT THE 1986 US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE (CD) RESEARCH) ON THE TOPICS OF: BIOTECHNOLOGY (TEN REPORTS); SYNTHESIS AND PROPERTIES (FIFTEEN REPORTS); DETECTION (SIXTEEN REPORTS); DECONTAMINATION (SEVENTEEN REPORTS); PROTECTION (FIVE REPORTS); MATERIALS (TWO REPORTS); AND TOXICOLOGY AND PHARMACOLOGY (TWO REPORTS).

TITLE: DEVELOPMENT OF A HATCH COVER FOR NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) OPERATIONS WITH THE M1A1 TANK
DATA SOURCE NO: CRDEC-CR-87112
AUTHOR: T.J. CARPENTER, T.E. HILL
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/09/01

COMMENTS: THIS REPORT DESCRIBES THE DEVELOPMENT OF FLEXIBLE

HATCH COVERS FOR BOTH HATCHES OF THE M1A1 TANK: THE COMMANDER'S HATCH AND THE LOADER'S HATCH. THESE HATCH COVERS PROVIDE NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) PROTECTION TO THE CREW MEMBERS DURING NBC OPERATIONS. HATCH COVER DESIGN DEVELOPMENT INCLUDE CONCEPT GENERATION, CONCEPT TESTING, AND FINAL DESIGN.

TITLE: CONTAMINATION HAZARD OF SECONDARY VAPOR IN A COLLECTIVE SHELTER RESULTING FROM ENTRY/EXIT OPERATION
DATA SOURCE NO: CRDEC-TR-87074
AUTHOR: A. BIRENZVIGE
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/09/01

COMMENTS: THIS IS A REPORT ON A THEORETICAL STUDY OF THE EFFECTS OF ENTRY/EXIT PROCEDURES ON THE VAPOR HAZARD INSIDE AN NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) SHELTER. THE MODEL ASSUMES THAT SOLDIERS WILL DOFF THEIR CONTAMINATED OVERGARMENTS IN A VAPOR RICH ENVIRONMENT WHERE SOME VAPOR CAN ABSORB ON THEIR UNDERGARMENTS OR SKIN. WHEN THE SOLDIERS ENTER THE AIR LOCK, SOME OF THE VAPOR DESORBS. AFTER A FEW MINUTES IN THE LOCK, THEY ENTER THE SHELTER WHERE THE REMAINING VAPOR DESORBS. THE MODEL CALCULATES THE TIME HISTORY OF AGENT CONCENTRATION IN THE AIR LOCK AND SHELTER. MODEL IS A SIMPLE DIFFERENTIAL EQUATION. NO PROGRAM OR DATA ARE PRESENTED.

TITLE: FIELD TESTING OF PROCEDURES FOR EMPLOYING THE M20 COLLECTIVE PROTECTION EQUIPMENT AS A TACTICAL OPERATIONS CENTER
DATA SOURCE NO: CRDEC-TR-88001
AUTHOR: W.K. BLEWETT, G.A. STICKEL, V. ARCA, T. HILL
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/10/01

COMMENTS: THIS REPORT DESCRIBES A TEST IN WHICH THE M20 SIMPLIFIED COLLECTIVE PROTECTION SHELTER (SCPS), WHILE EMPLOYED AS A TACTICAL OPERATIONS CENTER (TOC), WAS CHALLENGED WITH A SIMULATED CHEMICAL AGENT (METHYL SALICYLATE) DURING A THIRTY-THREE HOUR FIELD OPERATION. RESULTS INDICATE THAT THE M20 CAN BE EMPLOYED EFFECTIVELY AS A TOC IN A CHEMICAL ENVIRONMENT, THAT THE CHEMICAL AGENT MONITOR (CAM) PROCEDURES ARE EFFECTIVE AGAINST THE CONTAMINATION TRANSFER INTO SHELTERS, AND THAT ENTRY/EXIT PROCEDURES CREATE PROBLEMS OF RESUPPLY OF PROTECTIVE CLOTHING. CONTAINS A DRAFT STANDARD OPERATING PROCEDURE (SOP) FOR THE M20 SIMPLIFIED COLLECTIVE PROTECTION SHELTER AND A DETAILED LOG OF EVENTS INSIDE THE SHELTER.

TITLE: SCPS-M PROCESSING STUDY
DATA SOURCE NO: AAMRL-TR-87-048, ADB117565
AUTHOR: C.M. DEMBECK, J.R. MASAK
ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/01/01

COMMENTS: THIS DOCUMENT DESCRIBES HOW CASUALTY PROCESSING DATA FOR THE CONCEPTUAL SURVIVABLE COLLECTIVE PROTECTION SYSTEM-MEDICAL (SCPS-M) WERE OBTAINED THROUGH COMPUTER SIMULATION. SIX DIFFERENT SCPS-M CONFIGURATIONS, INCLUDING THREE DIFFERENT EXIT SCHEMES, A 1-LITTER SCPS-M, AND A 2-LITTER SCPS-M, WERE SIMULATED TO DETERMINE MAXIMUM CONTINUOUS PROCESSING RATES, ATTENDANT UTILIZATION, AND MEAN INGRESS AND EGRESS PROCESSING TIMES. TWO DIFFERENT CASUALTY PRIORITY SCHEMES, AND FOUR DIFFERENT ATTENDANT CONFIGURATIONS, WERE ALSO INTEGRATED INTO THE SIMULATIONS TO STUDY THEIR EFFECTS ON SCPS-M PROCESSING CAPABILITY.

TITLE: MEASURING THE INTEGRITY OF TOTALLY ENCAPSULATING CHEMICAL PROTECTIVE SUITS
DATA SOURCE NO: UCRL--95100
AUTHOR: J.S. JOHNSON, J.O. STULL
ORIGINATING ORG: LAWRENCE LIVERMORE NATIONAL LABORATORY, LIVERMORE, CA FOR US DEPARTMENT OF ENERGY (DOE), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/01/19

COMMENTS: THE LAWRENCE LIVERMORE NATIONAL LABORATORY HAZARDS CONTROL DEPARTMENT IS IN THE PROCESS OF DEVELOPING SEVERAL TESTS TO ASSURE THAT THE TOTALLY ENCAPSULATING CHEMICAL PROTECTIVE (TECP) SUITS FUNCTION PROPERLY WITH A HIGH DEGREE OF RELIABILITY. THE TWO TYPES OF TESTS THAT WILL BE USED ARE DESIGN QUALIFICATION AND FIELD USE. THE DESIGN QUALIFICATION TEST CONSISTS OF THE FOLLOWING TESTS: QUANTITATIVE; WORST-CASE CHEMICAL EXPOSURE; AND PRESSURE LEAK RATE. THE FIELD USE TEST CONSISTS OF THE FOLLOWING TESTS: PRESSURE LEAK RATE AND CHEMICAL LEAK RATE.

TITLE: MODELING INHALATION EXPOSURE TO G-TYPE NERVE AGENTS
DATA SOURCE NO: CRDEC-TR-88036
AUTHOR: R.F. HONS, R.B. CROSIER
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/12/01

COMMENTS: THIS DOCUMENT PRESENTS A MODEL DESIGNED TO ALLOW ANIMAL-TO-HUMAN EXTPAPOLATION OF G-TYPE NERVE AGENT TOXICITY DATA. LIMITED AMOUNTS OF DATA ARE GIVEN. THREE ROUTES OF ENTRY ARE DISCUSSED: INTRAVENOUS, PERCUTANEOUS, AND INHALATION.

TITLE: NIGHT RECONNAISSANCE OPERATIONS IN A MISSION-ORIENTED PROTECTIVE POSTURE
DATA SOURCE NO: DPG/TA-87/22
AUTHOR: C.K. RAMACHANDRAN, J.R. MONTGOMERY
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/11/01

COMMENTS: THIS REPORT EVALUATES THE EFFICIENCY OF THE PERFORMANCE OF SOLDIERS IN A MISSION ORIENTED PROTECTIVE POSTURE (MOPP) IN A SIMULATED NIGHT RECONNAISSANCE MISSION. SEVERAL OPERATIONS WERE HINDERED AS A RESULT OF THE SOLDIERS WEARING MOPP 4 AS COMPARED TO WEARING THE BATTLE DRESS UNIFORM (BDU). RESULTS INDICATED THAT TASK PERFORMANCE DEGRADATION CAN BE REDUCED BY HAVING SOLDIERS REPEAT THE PERFORMANCE SEVERAL TIMES. OVERGARMENT HEAT BUILD-UP WAS THE PRINCIPLE PROBLEM. STEALTH WAS TOTALLY LACKING FOR CREWS DRESSED IN MOPP 4 BECAUSE OF HIGH NOISE LEVELS, SLOW MOVEMENT, TRIPPING, AND SNAGGING.

TITLE: ARMY SCIENCE BOARD AD HOC STUDY ON THE US ARMY BIOLOGICAL DEFENSE RESEARCH PROGRAM
AUTHOR: D.S. BARTH, T. COOPER, E.R. JONES, E.J. ROCK, S.J. SARNOFF, J.P. SWAZEY, L.W. TORDELLA
ORIGINATING ORG: OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/01

COMMENTS: THIS REPORT IS THE FINAL REPORT OF THE US ARMY SCIENCE BOARD REVIEW OF THE US ARMY BIOLOGICAL DEFENSE RESEARCH PROGRAM. IT IS A GOOD GENERAL REVIEW OF THE OVERALL PROGRAM. CONTAINS SIX MAJOR RECOMMENDATIONS IN THE AREAS OF THREAT, VULNERABILITY, ORGANIZATION, TRAINING, DOCTRINE, RESEARCH, DEVELOPMENT, TESTING, AND PUBLIC PERCEPTION.

TITLE: TROOP PERFORMANCE DEGRADATION IN MISSION-ORIENTED PROTECTIVE POSTURE LEVEL 4, HAWK MISSILE OPERATIONS
DATA SOURCE NO: DPG/TA-88/04
AUTHOR: D.T. PARKER, R. STEARMAN
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT

CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/12/01

COMMENTS: THE REPORT OBJECTIVE WAS TO OBTAIN DATA ON PERFORMANCE OF HAWK MISSILE AIR DEFENSE ARTILLERY OPERATIONS IN A CHEMICAL ENVIRONMENT. TASKS WERE PERFORMED BY PERSONNEL IN MOPP 4 (MISSION ORIENTED PROTECTIVE POSTURE 4). TIMES TO COMPLETE EACH EVENT AND TIME TO COMPLETE THE TOTAL OPERATION WERE RECORDED AND THE DIFFERENCE IN TIMES WERE ANALYZED. THE DATA DID NOT PERMIT QUANTIFICATION OF THE DEGRADATION. MARKED IMPPOVEMENT IN PERFORMANCE WITH EXPERIENCE WAS EVIDENT. MANY DEFICIENCIES IN THE PERSONAL CHEMICAL PROTECTIVE GEAR WERE IDENTIFIED.

TITLE: CHEMICAL WARFARE DEFENSE: AIRCRAFT DESIGN IMPLICATIONS EVALUATION, VOLUME I
DATA SOURCE NO: ASD-TR-86-5006
AUTHOR: K.S. RAJAN, J. PETROVIC, D.H. BRAZELTON
ORIGINATING ORG: IIT RESEARCH INSTITUTE, CHICAGO, IL FOR AERONAUTICAL SYSTEMS DIVISION (ASD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 87/02/01

COMMENTS: THIS REPORT SUMMARIZES THE RESULTS OF A FOUR-TASK STUDY ON THE EVALUATION OF POSSIBLE AIRCRAFT VULNERABILITIES AND DESIGN IMPLICATIONS RESULTING FROM EXPOSURE TO A CHEMICAL WARFARE (CW) ENVIRONMENT AS WELL AS THEIR POSSIBLE EFFECT ON SORTIE GENERATION. IN THE FIRST TASK, INPUTS CHARACTERIZING THE POSSIBLE VULNERABILITIES OF F-16 AIRCRAFT WERE DEVELOPED AND THEIR IMPACT ON SORTIE GENERATION WAS EVALUATED. AN ANALYSIS OF THE AIRCRAFT FAILURE MODES AND EFFECTS AND VULNERABILITIES OF F-15 AND A-10 AIRCRAFT WAS PERFORMED UNDER TASK TWO. THIS WAS SIMILAR TO THAT PERFORMED IN THE F-16 CHEMICAL HARDENING STUDY. UNDER TASK THREE, A CROSS-AIRCRAFT COMPARISON MATRIX CONSISTING OF COMMON AND UNIQUE VULNERABILITIES WAS DEVELOPED. IT ALSO INCLUDES SOME CONCLUSIONS AND RECOMMENDATIONS FOR IMPROVEMENTS FOR CHEMICAL HARDENING AND THE REQUIRED TEST PROGRAMS. TASK FOUR OF THIS STUDY IS CONCERNED WITH THE CONSOLIDATION OF THE RESULTS AND DOCUMENTATION. REPORT CONTAINS LITTLE DATA.

TITLE: CHEMICAL WARFARE DEFENSE: AIRCRAFT DESIGN IMPLICATIONS EVALUATION, VOLUME II: APPENDICES A-D
DATA SOURCE NO: ASD-TR-86-5006
AUTHOR: K.S. RAJAN, J. PETROVIC, D.H. BRAZELTON
ORIGINATING ORG: IIT RESEARCH INSTITUTE, CHICAGO, IL FOR AERONAUTICAL SYSTEMS DIVISION (ASD), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: SECRET
DOCUMENT DATE: 87/02/01

COMMENTS: THIS APPENDIX CONTAINS TABLES ON AIRCRAFT COMPONENTS, THEIR LOCATION, AND THE TYPE (METHOD) OF CONTAMINATION, ITS EFFECTS, AND TIME TO FAILURE. IT ALSO CONTAINS DRAWINGS OF THE BOTTOM OF AIRCRAFT SHOWING WHERE LIQUID WOULD SPLASH. REPORT CONTAINS TABLES ON CHEMICALLY INDUCED MAINTENANCE EVENTS BY SHOP, CHEMICAL DAMAGE REPAIR CRITERIA, CHEMICAL DAMAGE REPAIR ESTIMATES, MEAN TIME TO FAILURE, AIRCRAFT VULNERABLE MATERIALS BREAKDOWN, AND A COMPARISON OF COMPONENTS ACROSS AIRCRAFT. AIRCRAFT EXAMINED ARE F-16, F-15, AND A-10.

TITLE: ATROPINE AND HUMAN CONTRAST SENSITIVITY FUNCTION
DATA SOURCE NO: LAIR-236, ADA181074
AUTHOR: D.M. PENETAR, J.J. KEARNEY
ORIGINATING ORG: LETTERMAN ARMY INSTITUTE OF RESEARCH (LAIR), PRESIDIO OF SAN FRANCISCO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE. 87/04/01

COMMENTS: EFFECTS OF ONE AND TWO AUTO INJECTOR EQUIVALENTS OF ATROPINE SULFATE ON CONTRAST SENSITIVITY WERE MEASURED IN EIGHT MALE VOLUNTEERS. USING AN AUTOMATED CONTRAST SENSITIVITY MACHINE, VOLUNTEERS WERE REQUIRED TO DETECT SINUSOIDAL GRATINGS OF VARIOUS FREQUENCIES. AT TWO HOURS AFTER INJECTION, NO ATROPINE EFFECT ON VISUAL ACUITY WAS OBSERVED FOR ANY OF THE VARIOUS FREQUENCIES. CONTRAST SENSITIVITY DATA FOR BASELINE, TWO MILLIGRAMS (MG) PER SEVENTY KILOGRAM (KG) ATROPINE, FOUR MG PER SEVENTY KG ATROPINE, AND SALINE PLACEBO ARE PRESENTED GRAPHICALLY.

TITLE: ATROPINE EFFECTS ON THE OPERATION OF THE TOW MISSILE LAUNCHER
DATA SOURCE NO: LAIR-234, ADA183368
AUTHOR: D.M. PENETAR, D.A. STAMPER, J.W. MOLCHANY
ORIGINATING ORG: LETTERMAN ARMY INSTITUTE OF RESEARCH (LAIR), PRESIDIO OF SAN FRANCISCO, CA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/03/01

COMMENTS: THE EFFECTS OF ONE AND TWO AUTO INJECTOR EQUIVALENTS OF ATROPINE SULFATE (TWO AND FOUR MILLIGRAMS (MG) PER SEVENTY KILOGRAMS (KG)) WERE INJECTED (INTRAMUSCULARLY) IN EIGHT VOLUNTEERS, AGES TWENTY-TWO TO THIRTY-NINE. DRUG EFFECTS ON THE VOLUNTEERS WERE ASSESSED ON THE BASIS OF THEIR ABILITY TO OPERATE THE US ARMY'S CURRENT INFANTRY ANTI-TANK WEAPON, THE TOW MISSILE LAUNCHER. SOLDIERS WERE REQUIRED TO OPTICALLY TRACK AND MANUALLY MAINTAIN THE CROSS HAIRS OF THE SIGHTS ON A MOVING TARGET VEHICLE TWO KILOMETERS AWAY FOR FIFTEEN SECONDS UNDER BOTH DAYLIGHT AND SIMULATED DUSK/DAWN CONDITIONS. RESULTS INDICATE NO SIGNIFICANT IMPAIRMENT OF TRACKING CAPABILITY AFTER A TWO MILLIGRAM PER

SEVENTY KILOGRAM INJECTION; HOWEVER, SIGNIFICANT DECREMENTS WERE OBSERVED AFTER FOUR MILLIGRAMS PER SEVENTY KILOGRAMS INJECTION UNDER BOTH LIGHT CONDITIONS. PEAK DEGRADATES WERE OBSERVED 150 MINUTES AFTER INJECTIONS.

TITLE: PROTECTION AGAINST THE ACUTE AND DELAYED TOXICITY OF MUSTARDS AND MUSTARD-LIKE COMPOUNDS
DATA SOURCE NO: ADA183573
AUTHOR: D.B. LUDLUM
ORIGINATING ORG: ALBANY MEDICAL COLLEGE, ALBANY, NY, FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/02/01

COMMENTS: SULFER MUSTARDS CAUSE A VARIETY OF DNA (DEOXYLRIBONUCLEIC ACID) MODIFICATIONS AND MANY BODY REPAIR PROCESSES OPERATE TO PROTECT CELLS FROM THE CONSEQUENCES OF THIS DAMAGE. THIS REPORT DESCRIBES AN EFFORT TO REPAIR DNA DAMAGE RESULTING FROM A MODEL FOR SULFER MUSTARD SUCH AS CEES (CHLOROETHYL ETHYL SULFIDE). ALKYL TRANSFERASE WAS USED TO ATTEMPT TO REPAIR. RESULTS SHOWED THAT WHILE AKYL TRANSFERASE WAS NOT EFFECTIVE, IT IS POSSIBLE TO BUILD A RESISTANCE TO THE EFFECTS OF ALKYLATING AGENTS (SUCH AS CEES). FUTURE WORK IS RECOMMENDED TO DETERMINE HOW THIS RESISTANCE IS FORMED AND HOW TO INCREASE THESE DEFENSE MECHANISMS.

TITLE: LABORATORY EVALUATION OF THE NAVAL BEACH GROUP/NAVAL CONSTRUCTION FORCES PORTABLE CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DECONTAMINATION SYSTEM
DATA SOURCE NO: DTNSRDC/SME-86/81, ADB111032
AUTHOR: T.E. WENZEL, D.R. DECKER, R.S. MARSHALL, S.M. FINGER, G. FELDING
ORIGINATING ORG: ENGINEERING COMPUTER OPTECONOMICS, INC., ANNAPOLIS, MD FOR DAVID TAYLOR SHIP RESEARCH AND DEVELOPMENT CENTER (DTNSRDC), BETHESDA, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/03/01

COMMENTS: THE NAVAL BEACH GROUP/NAVAL CONSTRUCTION FORCES (NBG/NCF) PORTABLE DECONTAMINATION SYSTEM IS DESIGNED TO DECONTAMINATE EQUIPMENT, SUPPLIES, AND OPERATIONAL AREAS AFTER ATTACK WITH CHEMICAL OR BIOLOGICAL WEAPONS. THIS STUDY EVALUATES ALTERNATIVE SYSTEM COMPONENTS (TWO PUMPS, TWO MIXING MECHANISMS, THREE NOZZLES) TO DETERMINE THE BEST CONFIGURATION IN TERMS OF SPRAY COVERAGE, FLOW RATE, AND HYPOCHLORITE DECONTAMINANT CONCENTRATION. RESULTS INDICATE THE BEST CONFIGURATION PROVIDES EFFECTIVE DECONTAMINANT COVERAGE TO SUPPORT THE RAPID RESTORATION OF OPERATIONS AFTER AND ATTACK WITH CHEMICAL OR BIOLOGICAL WEAPONS. IT IS RECOMMENDED THAT HYPOCHLORITE AND/OR DETERGENT SOLUTIONS

BE USED WITH THE PORTABLE DECONTAMINATION SYSTEM AND FURTHER TESTING USING CHEMICAL SIMULANTS ON TYPICAL NAVY EQUIPMENT BE CONDUCTED TO DETERMINE DECONTAMINATION EFFECTIVENESS. DATA PRESENTED INCLUDES SPRAY COVERAGE, FLOW RATES, AND HYPOCHLORITE DECONTAMINATION CONCENTRATION.

TITLE: PSYCHOTOXIC CHEMICAL WARFARE AGENTS AND HUMAN CAPACITIES
DATA SOURCE NO: AFMIC-HT-112-87, ADB112445
AUTHOR: D. STREMMEL
ORIGINATING ORG: US ARMED FORCES MEDICAL INTELLIGENCE CENTER (AFMIC), FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/18

COMMENTS: THIS IS A TRANSLATION OF AN EAST GERMAN DOCUMENT DESCRIBING THE POTENTIAL USE OF PSYCHOTOXIC CHEMICAL WARFARE (CW) AGENTS AGAINST TROOPS AND THE PSYCHOLOGICAL EFFECTS OF TACTICAL NUCLEAR WEAPONS. REFERENCES ARE MADE TO THE WORK AT FORT DETRICK WITH BZ (A NON-LETHAL INCAPACITATING AGENT), DITRAN (AN ACETYLCHOLINE (ACH) ANALOG), AND LSD (LYSERGIC ACID DIETHYLAMINE) AND THE ANTIDOTE WORK WITH PHYSOSTIGMINE, BARBITURATES, AND TRANQUILIZERS. DOCUMENT OUTLINES FIVE OBJECTIVES FOR THE USE OF PSYCHOTOXIC AGENTS FROM INTERROGATION OF PRISONERS TO USE AGAINST UNPROTECTED MASS CIVILIAN POPULATIONS. BRIEF REFERENCE TO SAXITOXIN AND TETRODOTOXIN.

TITLE: CONTAMINATING EFFECT OF MILITARY ORGANOPHOSPHORIC NERVE GASES OF THE ENEMY AND PROTECTION AGAINST THEM
DATA SOURCE NO: AFMIC-HT-087-87, ADB112569
AUTHOR: G. KOTEV
ORIGINATING ORG: US ARMED FORCES MEDICAL INTELLIGENCE CENTER (AFMIC), FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/30

COMMENTS: THIS IS A TRANSLATION OF AN EAST GERMAN DOCUMENT DISCUSSING THE US VIEWPOINT OF CHEMICAL AGENT WEAPONS USAGE AND THE WARSAW PACT PROTECTION AGAINST SUCH USE. NERVE AGENTS MENTIONED ARE: VX, SARIN (GB), AND SOMAN (GD). THIS IS A VERY BRIEF DOCUMENT WITH A GENERAL OVERVIEW OF THE AREAS OF MILITARY CONTAMINATION, PROTECTION WITH MASKS AND ENSEMBLES, PROPHYLACTIC TREATMENT AND DECONTAMINATION.

TITLE: AN EXPERT SYSTEM TO ASSIST A NAVY DAMAGE CONTROL ASSISTANT WITH CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DEFENSE
DATA SOURCE NO: ADB114083
AUTHOR: S.J. CAMACHO
ORIGINATING ORG: NAVAL POSTGRADUATE SCHOOL, MONTEREY, CA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THIS THESIS STUDIES THE DEVELOPMENT OF AN AID FOR THE DAMAGE CONTROL ASSISTANT DURING A CHEMICAL, BIOLOGICAL, OR RADIOLOGICAL (CBR) ATTACK ON A NAVAL SHIP. A PROTOTYPE RULE-BASED EXPERT SYSTEM IS DESIGNED AND IMPLEMENTED TO SERVE AS THE AID. THE RULES ARE BASED ON STANDARD PROCEDURES FOUND IN (US) NAVAL WARFARE PUBLICATION 62-1, NAVAL SHIPS' TECHNICAL MANUAL, AND OTHER DAMAGE CONTROL TEXTS. THE EXPERT SYSTEM USES FACTS THAT DESCRIBE THE CURRENT SITUATION AND THEN SEARCHES THE RULE BASE FOR MATCHING RULES. THE SEARCH METHOD IS HYBRID FORWARD-BACKWARD CHAINING. THE CONCLUSIONS ARE DISPLAYED TO THE USER ALONG WITH THE FACTS THAT MATCHED. REPORT CONTAINS A SIMPLE RULE BASE AND A PASCAL PROGRAM WITH WHICH THE SYSTEM IS IMPLEMENTED. SYSTEM IS DESIGNED TO BE CONCEPT DEMONSTRATION AND THUS IS VERY SIMPLE.

TITLE: CHEMICAL AGENT EVAPORATION PROFILES
DATA SOURCE NO: NATICK/TR-88/013L
AUTHOR: K. BAGGE
ORIGINATING ORG: US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, NATICK, MA
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/12/01

COMMENTS: THE US ARMY NATICK RESEARCH, DEVELOPMENT AND ENGINEERING CENTER IS DEVELOPING PORTABLE COLLECTIVE PROTECTION EQUIPMENT (PCPE) FOR THE US MARINE CORPS. THE MARINE CORPS REQUIRES THAT PCPE MATERIAL WITHSTAND LIQUID PENETRATION FROM A SINGLE ATTACK UNTIL ALL THE LIQUID CONTAMINATION EVAPORATES. IN LABORATORY TESTS, CANDIDATE MATERIALS WERE CHALLENGED WITH THICKENED SOMAN (TGD), DISTILLED MUSTARD (HD), AND THE NERVE AGENT VX. NUSSE-3 (NON-UNIFORM SIMPLE SURFACE EVAPORATION MODEL, VERSION 3) RESULTS WERE VALIDATED BY COMPARING MODEL RESULTS TO EXPERIMENTAL RESULTS. FOR TGD AND HD, NUSSE-3 RESULTS FIT THE EXPERIMENTAL RESULTS, BUT THE MODEL UNDERESTIMATED THE PERSISTENCE TIME FOR VX.

TITLE: AIRCRAFT OPERATIONS IN A TOXIC ENVIRONMENT (AOTE), SUBTEST 12 - HAZARDS OF GROUND OPERATIONS OF LARGE MULTIENGINE AIRCRAFT (LMEAC) IN A SIMULATED TOXIC ENVIRONMENT
DATA SOURCE NO: DPG-TR-85-203
AUTHOR: W.T. TAYLOR, G.L. SUTTON

ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 87/12/01

COMMENTS: REPORT ON FIELD TESTS OF GROUND OPERATIONS OF CARGO AIRCRAFT IN A SIMULATED CONTAMINATED ENVIRONMENT. CONTAMINATE SIMULANT THICKENED DIETHYL MALONATE (TDEM) WAS SPRAYED ON THE GROUND AND ON CARGO PALLETS, AND LOADED INTO THE AIRCRAFT. SIMULANT PICKUP AND TRANSFER WAS MEASURED ON TEST PERSONNEL. VAPOR LEVELS WITHIN THE AIRCRAFT WERE MEASURED AT VARIOUS TIMES. MEDICAL OPERATIONS WERE ALSO PERFORMED.

TITLE: ENVIRONMENTAL FATE AND EFFECTS OF TRIBUTYL PHOSPHATE AND METHYL PHOSPHONIC ACID
DATA SOURCE NO: CRDEC-CR-87103
AUTHOR: R.T. WILLIAMS, W.R. MILLER, A.R. MACGILLIVRAY
ORIGINATING ORG: ROY F. WESTON INC., WEST CHESTER, PA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/08/01

COMMENTS: THIS REPORT REVIEWS AND SUMMARIZES EXISTING KNOWLEDGE ON TRIBUTYL PHOSPHATE (TBP) AND METHYL PHOSPHONIC ACID (MPA) AND PRESENTS DATA FROM TOXICITY TESTS ON TBP AND MPA. MPA IS A PRECURSOR TO AND A DEGRADATION PRODUCT OF SARIN (GB) AND SOMAN (GD). IT IS RESISTANT TO CHEMICAL AND BIOLOGICAL DEGRADATION BECAUSE OF THE C-P BOND IN ITS STRUCTURE. TBP IS USED AS A CHEMICAL WARFARE (CW) SIMULANT. BIODEGRADATION APPEARS TO BE RAPID UNDER AEROBIC CONDITIONS. INFORMATION ON CHEMICAL AND PHYSICAL DEGRADATION OF TBP IS LIMITED. TBP HAS MODERATE ACUTE TOXICITY IN AQUATIC SPECIES. TBP IS A SKIN, EYE, AND RESPIRATORY IRRITANT WITH WEAK ANTICHOLINESTERASE ACTIVITY.

TITLE: CHEMICAL DEFENSE COLLECTIVE PROTECTION TECHNOLOGY: VOLUME 2, EFFECTS OF AIRLOCK AIRFLOW PATTERN, CLOTHING, AND EXPOSURE CONCENTRATION ON VAPOR TRANSPORT
DATA SOURCE NO: USAFSAM-TP-86-5, ADA181305
AUTHOR: J.P. CONKLE, R.E. MIRANDA, J. THOMAS, J.R. FISCHER, R.W. PAGE, D.L. BARTLETT
ORIGINATING ORG: US AIR FORCE SCHOOL OF AEROSPACE MEDICINE (USAFSAM), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/04/01

COMMENTS: PROCEDURES FOR PROCESSING PERSONNEL THROUGH CHEMICAL DEFENSE COLLECTIVE SHELTERS WERE EMPLOYED TO EXAMINE THE CONTAMINATION OF TOXIC SAFE AREAS (TSAS), IN SHELTERS, AS A RESULT OF

TRANSPORT OF CHEMICAL AGENT VAPOR ON CLOTHING UNDERLAYERS. THE QUANTITY OF VAPOR THUS TRANSPORTED INTO THE TSAS WAS EXAMINED AS A FUNCTION OF: AIRLOCK AIRFLOW PATTERN; TYPE OF OUTER CLOTHING WORN DURING EXPOSURE: AND VAPOR EXPOSURE CONCENTRATION. A SIMULATED SURVIVABLE COLLECTIVE PROTECTION SHELTER CONTAMINATION CONTROL AREA FACILITY WAS EMPLOYED. PERSONNEL, DRESSED EITHER IN FATIGUES OVER T-SHIRT AND JOCKEY SHORTS, OR IN FLYER'S CHARCOAL UNDER-COVERALL (UNITED KINGDOM) OVER AIRCREW UNDERSHIRT AND DRAWERS, WERE FIRST EXPOSED TO CHEMICAL WARFARE (CW) AGENT SIMULANT (METHYL SALICYLATE) VAPOR, AND WERE THEN PROCESSED THROUGH THE LIQUID HAZARD AREA (LHA) AND VAPOR HAZARD AREA (VHA). PROCESSING INCLUDED PASSAGE THROUGH EITHER THE ORIGINAL DESIGN AIRLOCK OR A MODIFIED DESIGN AIRLOCK BEFORE ENTRY INTO THE TSA. INSIDE THE TSA, INDIVIDUAL SUBJECTS WERE ISOLATED WITH VAPOR OFFGASSED OVER A TWO HOUR PERIOD MEASURED. RESULTS OF THESE STUDIES ARE INCLUDED.

TITLE: BLAST OPERATIONAL OVERPRESSURE MODEL (BOOM): AN AIRBLAST PREDICTION METHOD
DATA SOURCE NO: AFWL-TR-85-150, ADA182025
AUTHOR: D.A. DOUGLAS
ORIGINATING ORG: US AIR FORCE WEAPONS LABORATORY (AFWL), KIRLAND AFB, NM
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/04/01

COMMENTS: THIS REPORT DISCUSSED AN AIRBLAST PREDICTION TECHNIQUE, THE BOOM (BLAST OPERATIONAL OVERPRESSURE MODEL). THIS TECHNIQUE INCORPORATES A SINGLE FUNCTION RATHER THAN COMPUTER INTENSIVE RAY TRACING METHODS, TO ACCOUNT FOR ATMOSPHERIC REFRACTIVE EFFECTS ON AIRBLAST PROPACATION. THE BOOM WAS IMPLEMENTED ON A RADIO SHACK PC-2 PORTABLE COMPUTER AND IS PARTICULARY APPLICABLE FOR AIRBLAST PREDICTIONS AT REMOTE LOCATIONS.

TITLE: EVALUATION OF GAS EXCHANGE CAPABILITY AND WORK REQUIREMENTS OF A HAND POWERED RESUSCITATOR FOR ORGANOPHOSPHATE CASUALTIES
DATA SOURCE NO: ADA184160
AUTHOR: P.H. ABBRECHT, H.J. BRYANT
ORIGINATING ORG: UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES, BETHESDA, MD FOR US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND, FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/07/20

COMMENTS: ANESTHETIZED DOGS WERE GIVEN TWO LD50S (TWO TIMES THE LETHAL DOSE FOR FIFTY PERCENT OF AN EXPOSED POPULATION) OF SOMAN (GD) FOLLOWED BY ONE MILLIGRAM (MG) OF ATROPINE EIGHT MINUTES LATER. HEART

RATE, ARTERIAL PRESSURE, UPPOER AIRWAY LEAKAGE, AND POWER DONE ON A CRICOTHYROID CANNULA AND HAND-POWERED RESUSCITATOR (RDIC) WERE MEASURED PERIODICALLY FOR ONE HOUR FOLLOWING EXPOSURE TO GD. SEVERAL TABLES ARE PRESENTED ILLUSTRATING THE RESULTS OF THE EXPERIMENTS. FROM THESE RESULTS, IT WAS DETERMINED THAT HUMAN CASUALITES COULD BE VENTILATED ADEQUATELY WITH THE RDIC, ESPECIALLY WITH ATROPINE TREATMENT.

TITLE: TEXTBOOK ON CIVIL DEFENSE MEDICAL SERVICE
DATA SOURCE NO: AFMIC-HT-054-87, ADB110744
AUTHOR: P.N. SAFRONOV
ORIGINATING ORG: US ARMED FORCES MEDICAL INTELLIGENCE CENTER (AFMIC), FORT DETRICK, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/13

COMMENTS: THIS IS A TRANSLATION OF A RUSSIAN TEXTBOOK ON CIVIL DEFENSE MEDICAL SERVICES (1981 EDITION). IT CONTAINS TEXT IN THE FOLLOWING AREAS: OGRANIZATION OF CIVIL DEFENSE AND MEDICAL CORPS; MEDICAL-TACTICAL CHARACTERISTICS OF NUCLEAR, CHEMICAL AND BACTERIOLOGICAL DESTRUCTION; MEDICAL SUPPORT; RESCUE OPERATIONS; SANITARY/HYGENIC AND ANTI-EPIDEMIC SUPPORT; PLANS AND SUPPORT FROM THE NATIONAL HEALTH ESTABLISHMENTS. CHEMICAL AND BIOLOGICAL INFORMATION IS VERY GENERAL AND NO DATA IS GIVEN.

TITLE: QUALITATIVE EVALUATION OF THE TACTICAL LIFE SUPPORT SYSTEM (TLSS) IN THE F-15
DATA SOURCE NO: AFFTC-TR-87-05, ADB111642
AUTHOR: M.R. HARBERT, C.J. PRECOURT
ORIGINATING ORG: US AIR FORCE FLIGHT TEST CENTER (AFFTC), EDWARDS AFB, CA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/29

COMMENTS: THIS REPORT PRESENTS THE RESULTS OBTAINED FROM THE QUALITATIVE EVALUATION OF THE TACTICAL LIFE SUPPORT SYSTEM (TLSS) CONDUCTED AT EDWARDS AIR FORCE BASE (AFB), CALIFORNIA. THE TLSS WAS DESIGNED AS A FULLY INTEGRATED LIFE SUPPORT SYSTEM TO PROVIDE PERSONAL PROTECTION FROM SUSTAINED HIGH ACCELERATION, HIGH ALTITUDE, CHEMICAL AGENTS, LASER AND FLASH BLINDNESS ENVIRONMENTS. AN ONBOARD OXYGEN GENERATING SYSTEM WAS ALSO EVALUATED. THE TEST INCLUDED THIRTY DEDICATED FLIGHTS IN A MODIFIED F-15 AIRCRAFT. THE TEST ALSO EVALUATED GROUND OPERATIONS PERFORMED BY PILOTS. PROBLEMS WERE IDENTIFIED, BUT PROJECT PILOTS AGREED THEY WOULD CHOOSE THE TLSS, AS TESTED, OVER THE CURRENT LIFE SUPPORT SYSTEM FOR FIGHTER MISSIONS.

TITLE: IMPROVED AIRCREW CHEMICAL WARFARE DEFENSE COVERALL (IACC)
DATA SOURCE NO: ADB112702
AUTHOR: H.W. KIRK
ORIGINATING ORG: US AIR FORCE TACTICAL AIR WARFARE CENTER (USAFTAWC), EGLIN AFB, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THIS REPORT CONSISTS OF A TEST PLAN DESCRIBING THE INITIAL OPERATIONAL TEST AND EVALUATION (IOT&E) OF THE IMPROVED AIRCREW CHEMICAL WARFARE DEFENSE COVERALL (IACC). THE IACC IS DESIGNED TO PROTECT THE INDIVIDUAL FROM THE TOXIC EFFECTS OF CHEMICAL WARFARE (CW) AGENTS. THE IACC IS INTENDED TO REPLACE THE EXISTING AIRCREW GARMENT WHICH REQUIRES THREE LAYERS OF CLOTHING THAT CREATES INHERENT DON, DOFF, AND THERMAL PROBLEMS. THE IACC WILL BE TESTED BY US AIR FORCE AIRCREW MEMBERS INCLUDING PILOTS, CO-PILOTS, WEAPON SYSTEMS OPERATORS, NAVIGATORS, FLIGHT ENGINEERS, AND LOAD MASTERS. THE US AIR FORCE TACTICAL AIR WARFARE CENTER (USAFTAWC) IS RESPONSIBLE FOR THE OVERALL MANAGEMENT OF THIS TEST.

TITLE: INITIAL OPERATIONAL TEST AND EVALUATION OF THE SUIT, CONTAMINATION AVOIDANCE AND LIQUID PROTECTIVE (SCALP)
DATA SOURCE NO: 87-OT-AEBD-1330 ADB112808
AUTHOR: P.C. SNIPES
ORIGINATING ORG: US ARMY ARMOR AND ENGINEER BOARD, FORT KNOX, KY
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/05/29

COMMENTS: OPERATIONAL TESTS WERE CONDUCTED TO ASSESS THE ABILITY OF THE SUIT, CONTAMINATION AVOIDANCE AND LIQUID PROTECTIVE (SCALP) TO PROTECT THE INDIVIDUAL CHEMICAL PROTECTIVE ENSEMBLE FROM LIQUID CONTAMINANTS DURING OPERATIONAL FIELD USE. PARTICIPANTS INCLUDED CREWS OF AN M1A1 TANK, OCCUPANTS OF AN XM20 COLLECTIVE PROTECTION SHELTER, MEMBERS OF EXPLOSIVE ORDNANCE DISPOSAL RESPONSE TEAMS, AND MEMBERS OF A DECONTAMINATION SQUAD. ARMOR, CHEMICAL AND ORDNANCE SOLDIERS WERE ABLE TO USE THE SCALP FOR INDIVIDUAL PROTECTION. THE SCALP REDUCED CONTAMINATION AND SOAKING OF THE BATTLE DRESS OVERGARMENTS (BDO) AND REDUCED THE AMOUNT OF INDIVIDUAL DECONTAMINATION REQUIRED. THE SCALP DID NOT CHANGE OR AFFECT THE PROTECTIVE CAPABILITIES OF COLLECTIVE PROTECTION SYSTEMS DURING EXIT AND ENTRY OPERATIONS.

TITLE: DEVELOPMENT TEST IIA (PQT-G) OF MODIFIED CHEMICAL/BIOLOGICAL (CB) MASK, XM43/AN-64
DATA SOURCE NO: ADB112831
AUTHOR: R.C. DECKER, C. LYLE

ORIGINATING ORG: US ARMY AVIATION DEVELOPMENT AND TEST ACTIVITY, FORT RUCKER, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/06/01

COMMENTS: THE TEST OBJECTIVES OF THIS STUDY WERE TO ACCUMULATE WEAR TIME ON XM43 CHEMICAL/BIOLOGICAL MASKS AND TO DETERMINE IF DESIGN CHANGES CORRECTED PREVIOUS ANOMALIES OR IF NEW PROBLEMS OCCUR. RESULTS INDICATE THAT FOUR OF THE PREVIOUS PROBLEMS WER NOT ADEQUATELY CORRECTED. HOOD MATERIAL, BLOWER HOUSING MATERIAL, AND VELCRO STRAPS WERE UNACCEPTABLE AND CONTAINED DEFICIENCIES. TWO NEW SHORTCOMINGS WERE ALSO IDENTIFIED.

TITLE: TASK 26 COMBINED ALLIED DEFENSE EXPERIMENT INTEGRATION, FINAL REPORT, APPENDIX H - TMD INTERCEPT OF THREAT CHEMICAL WARHEADS
DATA SOURCE NO: BDM/HTV-87-0361-TR, ADB113384
ORIGINATING ORG: THE BDM CORPORATION, HUNTSVILLE, AL, FOR US ARMY STRATEGIC DEFENSE COMMAND, HUNTSVILLE, AL
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/22

COMMENTS: THIS IS A REPORT ON THE CALCULATED RATE OF CHEMICAL AGENTS RELEASED FROM A BULK RELEASE DEVICE (TACTICAL BALLISTIC MISSILE (TBM)) THAT HAS BEEN INTERCEPTED BY A KINETIC ENERGY WEAPON PRIOR TO CHEMICAL WARHEAD FUNCTION. METHOD USED IS A SIMPLE BALLISTIC DROPLET MODEL THAT INCLUDES WIND SHEAR AND TEMPERATURE EFFECTS. INTERCEPT ALTITUDES FROM TWO TO FIFTEEN KILOMETERS (KM) WERE EXAMINED WITH SARIN (GB) AND SOMAN (GD) USED AS AGENT FILLS. PLOTS SHOWING MISS DISTANCES, LIQUID DEPOSITION, AND VAPOR CONCENTRATION ARE PROVIDED.

TITLE: THE DEVELOPMENT OF A HEAT STRESS METER/EVALUATOR FOR USE IN A MARINE ENVIRONMENT HARDWARE AND SOFTWARE CONSIDERATIONS
DATA SOURCE NO: NRL-MR-5946, ADB113433
AUTHOR: R. LITTLE
ORIGINATING ORG: NAVAL RESEARCH LABORATORY (NRL), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/04/20

COMMENTS: THIS REPORT OUTLINES THE REQUIREMENTS FOR A PORTABLE COMPUTER-BASED HEAT STRESS EVALUATOR/METER, INCLUDING HARDWARE AND GENERAL INPUT/OUTPUT INFORMATION DESCRIPTIONS. A PROTOTYPE SYSTEM USING A TOSHIBA T1100 PORTABLE COMPUTER IS DESCRIBED. A SAMPLE PROGRAM ADAPTED TO THE APPLE IIE PERSONAL COMPUTER IS DESCRIBED (NOT LISTED) AND SAMPLE OUTPUT (TEXT AND GRAPHICS) ARE PROVIDED. FINDINGS INCLUDED A

RECOMMENDATION FOR FUNDING THE DEVELOPMENT OF PROTOTYPE SOFTWARE AND HARDWARE.

TITLE: DESIGN AND DEVELOPMENT OF A RESEALABLE CHEMICAL WARFARE EQUIPMENT (FIRST AID KIT) COVER, AMD-2
DATA SOURCE NO: ADB113640
AUTHOR: B.A. METZ, C.L. GEARY, R.L. MARKHAM
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION TACTICAL TECHNOLOGY CENTER, COLUMBUS, OH, FOR US AIR FORCE AEROSPACE MEDICAL DIVISION (AMD), BROOKS AFB, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/07/01

COMMENTS: THE OBJECTIVE OF THIS RESEARCH EFFORT WAS TO DESIGN, EVALUATE, AND FABRICATE A RESEALABLE COVER FOR THE FIRST AID KIT THAT WOULD RESIST CHEMICAL WARFARE (CW) AGENTS MUSTARD (HD) AND SOMAN (GD). THE DESIRED COVER SHOULD: BE RESEALABLE MULTIPLE TIMES; BE OPENABLE WHILE WEARING BUTYL GLOVES; FIT IN THE PRESENT OUTER FIRST AID KIT POUCH; AND PREVENT PERMEATION OF GD AND HD VAPOR AND LIQUID THROUGH THE SEAL AREA. SEVERAL TYPES OF CLOSURE MECHANISMS WERE CONSIDERED INCLUDING CLAMPS, FASTENERS, TIES, PLASTIC ZIPPERS, AND FOLDING TECHNIQUES. TWO CLOSURE MECHANISMS, A ZIPLOCK-TYPE PLASTIC ZIPPER, AND A TIN-TIE, WERE SELECTED FOR CHEMICAL AGENT EXPOSURE STUDIES. IT WAS FOUND THAT THE ZIPLOCK-TYPE CLOSURE IS NOT SUITABLE WHILE THE TIN-TIE IS ADEQUATE WITH CERTAIN CONSTRAINTS.

TITLE: FIRST ARTICLE - INITIAL PRODUCTION TEST (FA-IPT) OF DECONTAMINATION KIT, INDIVIDUAL EQUIPMENT, M280
DATA SOURCE NO: 8ES-670-028-004, ADB114331
AUTHOR: J.L. CARSON
ORIGINATING ORG: US ARMY COLD REGIONS TEST CENTER, APO SEATTLE, WA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/01

COMMENTS: THIS REPORT IS THE FINAL LETTER REPORT OF FIRST ARTICLE - INITIAL PRODUCTION TEST OF THE DECONTAMINATION KIT, INDIVIDUAL EQUIPMENT (IDKIE), M280. THE TEST WAS PERFORMED AT THE COLD REGIONS TEST CENTER (CRTC), FORT GREELY, ALASKA. RESULTS AND CONCLUSIONS ARE PRESENTED IN THE REPORT.

TITLE: OPERATIONAL EVALUATION OF THE SURVIVABLE COLLECTIVE PROTECTION SYSTEM - NAVY
DATA SOURCE NO: 554-12-OT-II, ADB114502

ORIGINATING ORG: OPERATIONAL TEST AND EVALUATION FORCE, NORFOLK, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/19

COMMENTS: THIS DOCUMENT DISCUSSED THE OPERATIONAL EVALUATION OF THE SCPS (SURVIVABLE COLLECTIVE PROTECTION SYSTEM) DEVELOPED FOR THE NAVY. THIS EVALUATION DETERMINED THE OPERATIONAL EFFECTIVENESS AND OPERATIONAL SUITABILITY OF THE SCPS-N, AND ITS READINESS FOR FLEET INTRODUCTION. VARIOUS OPERATIONAL TESTS WERE CONDUCTED, SHOWING THAT THE SCPS-N IS OPERATIONALLY EFFECTIVE AND HAS THE POTENTIAL TO BE OPERATIONALLY SUITABLE. LIMITED FLEET INTRODUCTION IS RECOMMENDED.

TITLE: SCPS-M PROCESSING STUDY, PHASE II
DATA SOURCE NO: AAMRL-TR-87-057, ADB118552
AUTHOR: R.D. BART, C.M. DEMBECK, J.R. MASAK
ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/08/01

COMMENTS: THIS REPORT DESCRIBES PHASE II OF A TWO-PHASE EFFORT TO OBTAIN CASUALTY PROCESSING DATA THROUGH COMPUTER SIMULATION FOR THE SURVIVABLE COLLECTIVE PROTECTION SYSTEM - MEDICAL (SCPS-M). PHASE I RESULTS SHOW THE ORIGINAL SCPS-M CONCEPT PROVIDES INADEQUATE PROCESSING CAPABILITY FOR THE EXPECTED CASUALTY ARRIVAL PATTERNS. IN PHASE II, AN UPDATED SCPS-M DESIGN, NEW SERVICE-TIME DATA, NEW STAFFING CONFIGURATIONS, AND NEW TREATMENT TABLE VARIATIONS ARE INCORPORATED INTO THE EXISTING MODEL OF THE SCPS-M. PHASE II RESULTS INDICATE THE PROCESSING CAPABILITY OF THE PHASE II SCPS-M IS SIGNIFICANTLY IMPROVED OVER PHASE I FOR ALL CASUALTY TYPES. UNDER EXPECTED CASUALTY ARRIVAL RATES, NO QUEUES FORM WHICH EXCEED THE ALLOTTED SPACE IN EACH SCPS-M STATION FOR THE IMPROVED DESIGN.

TITLE: BASELINE ANALYSIS OF SCPS-2 OPERATIONS
DATA SOURCE NO: AAMRL-TR-87-056, ADB119349
AUTHOR: C.M. DEMBECK, C.D. PORTER, G.M. JAMES
ORIGINATING ORG: JAYCOR, FAIRBORN, OH FOR HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY (AAMRL), WRIGHT-PATTERSON AFB, OH
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/09/01

COMMENTS: THIS REPORT DESCRIBES HOW PERSONNEL PROCESSING DATA FOR THE SURVIVABLE COLLECTIVE PROTECTION SYSTEM, VERSION 2 (SCPS-2), WERE OBTAINED THROUGH COMPUTER SIMULATION. ALTHOUGH THE DATA USED FOR THIS STUDY MAY NOT BE REPRESENTATIVE OF CURRENT SCPS-2 DEVELOPMENT EFFORTS, THE RESULTS AND CONCLUSIONS SERVE AS A BASELINE FOR SCPS-2

COMPUTER SIMULATION INVESTIGATION. THE MAXIMUM CONTINUOUS PROCESSING RATE WAS DETERMINED FOR FOUR DIFFERENT PROCESSING CONFIGURATIONS. MEAN INGRESS AND EGRESS PROCESSING TIMES AT THE MAXIMUM RATE WERE ALSO DETERMINED.

TITLE: STATISTICAL ANALYSIS OF PROTECTION FACTOR DATA PROVIDED BY XM40 MASK/HOOD PROTOTYPE CONCEPT TESTING
DATA SOURCE NO: CRDEC-CR-87111
AUTHOR: G.C. DERRINGER, L.M. ALTHOUSE, R.K. SMITH, R.L. MARKHAM
ORIGINATING ORG: BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 87/09/01

COMMENTS: THIS REPORT DISCUSSES A STATISTICAL STUDY OF IMPROVEMENT CONCEPTS FOR THE XM40 MASK/HOOD. PROTECTION FACTORS FOR SUBJECTS WEARING THE PROTOTYPE MASKS/HOODS (SINGULAR-CONCEPT IMPROVEMENTS AND/OR TWO-CONCEPT COMBINATIONS IMPROVEMENTS) WERE DETERMINED AND ANALYZED. THE BUBBLE PERIPHERY MASK EXHIBITED THE BEST PERFORMANCE OF ALL MASK CONCEPTS EVALUATED IN TERMS OF PROTECTION PROVIDED AND FORGIVENESS OF LESS-THAN-EXPERT DONNING. AN IMPROVED HEAD HARNESS EXHIBITED SIGNIFICANTLY IMPROVED PROTECTION, BUT NOT TO THE EXTENT OF THE BUBBLE PERIPHERY OR RIBBED PERIPHERY MASKS. ONLY MEDIUM-SIZED MASKS WERE STUDIED.

TITLE: NIGHT RECONNAISSANCE OPERATIONS IN MISSION ORIENTED PROTECTIVE POSTURE
DATA SOURCE NO: BRL-MR-3628
AUTHOR: WICK, C.H., MORRISSEY, J.A., KLOPCIC, J.T.
ORIGINATING ORG: US ARMY BALLISTIC RESEARCH LAB, ABERDEEN PROVING GROUNG, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/10/01

COMMENTS: EIGHT TASKS WERE PERFORMED IN A FIELD ENVIRONMENT AT MODERATE TEMPERATURES (52 TO 84 DEGREES F) AT NIGHT WHILE WEARING THE BATTLE DRESS UNIFORM (BDU) AND MOPP IV. TASK TIME MULTIPLIERS ARE PROVIDED TO REPRESENT THE ADDITIONAL TIME REQUIRED TO PERFORM THE TASKS IN MOPP IV. SUBJECTIVE DATA CONCERNING DIFFICULTIES ENCOUNTERED IN THE ENSEMBLE ARE PRESENTED ALONG WITH THE REGRESSION DATA FOR GENERATION OF THE TTM'S.

TITLE: MAINTENANCE OPERATIONS IN MISSION ORIENTED PROTECTIVE POSTURE LEVEL IV (MOPP IV)
DATA SOURCE NO: BRL-MR-3629
AUTHOR: C.H. WICK, J.A. MORRISSEY, J.T. KLOPCIC
ORIGINATING ORG: US ARMY BALLISTIC RESEARCH LAB, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLSIIFIED
DOCUMENT DATE: 87/10/01

COMMENTS: SEVEN US ARMY MAINTENANCE TASKS WERE PERFORMED IN BATTLE DRESS UNIFORM AND MOPP IV TO CLACULATE TASK TIME MULTIPLIERS TO REPRESENT PERFORMANCE DEGRADTION. TASKS INCLUDE REMOVE, REPAIR, REPLACE M60A3 POWER PACK, M60A3 TRANSMISSION, M109 BREECH BLOCK, M60 MACHINE GUN, M901 TRAVERSE MECHANISM, RECOVER M60A3, AND FADAC CIRCUIT BOARD. RAW FIELD DATA AND REGRESSION ANALYSIS ARE PROVIDED.

TITLE: MAINTENANCE OPERATIONS IN MISSION ORIENTED PROTECTIVE POSTURE LEVEL IV (MOPP IV) PART II
DATA SOURCE NO: BRL-MR-3630
AUTHOR: C.H. WICK, J.A. MORRISSEY
ORIGINATING ORG: US ARMY BALLISTIC RESEARCH LABORATORY, ABERDEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 87/10/01

COMMENTS: PERSONNEL PERFORMANCE OF ARMY TROOPS PERFORMING FIVE MAINTENANCE TASKS IN MOPP IV WAS EVALUATED. DEGRADATION WAS QUANTIFIED WITH TASK TIME MULTIPLIERS RANGING FROM 1.0 TO 2.2. STATISTICAL ANALYSIS OF THE RESULTS WAS ACCOMPLISHED AND SUBJECTIVE DATA WAS INCLUDED. THE EFFECT OF LEARNING WAS NOTED AND ACCOUNTED FOR. CLIMATIC DATA FOR ABERDEEN PROVING GROUND IN THE SUMMER IS PROVIDED. NO PHYSIOLOGICAL DATA IS INCLUDED. PERFORMANCE TIMES ARE LISTED BY EVENT AND TEAM.

TITLE: COMBINED ARMS IN A NUCLEAR/CHEMICAL ENVIRONMENT (CANE). PHASE 2A SUMMARY EVALUATION REPORT
DATA SOURCE NO: ADC041696L
AUTHOR: MOJECKI, J., PHILLIPS, W.A., DRAPER. E.S, HERSHBERGER, R., STUDDARD, W.C.
ORIGINATING ORG: US ARMY CHEMICAL SCHOOL, FT. MCCLELLAN, AL.
CLASSIFICATION: CONFIDENTIAL
DOCUMENT DATE: 87/05/31

COMMENTS: THIS REPORT PROVIDES A SUMMARY OF THE ANALYSIS RESULTS OF THE PHASE 2A FORCE DEVELOPMENT FIELD TESTING OF COMBINED ARMS IN A NUCLEAR AND CHEMICAL ENVIRONMENT CONDUCTED AT FT. HOOD, TEXAS IN

APRIL 1985. THE REPORT PROVIDES A SUMMARY OF THE ABILITY OF THE COMBINED ARMS FORCE TO OPERATE FOR SUSTAINED PERIODS IN THE MOPP GEAR. A SERIES OF FORCE-ON-FORCE TRIALS INVOLVED THE CAPABILITY OF A TANK COMPANY TO PERFORM AGAINST A RED FORCE. ISSUES EVALUATED WERE: CLOSE COMBAT HEAVY; COMMAND AND CONTROL; COMMUNICATIONS; FIRE SUPPORT; COMBAT SUPPORT AND NBC POSTURE.

LITERATURE REVEIW FOR 1988

TITLE: THE ATTACK ON MOLL HARRIS CLUMP, A TEST CASE FOR "GASRISK" ON CHEMICAL DEFENCE VULNERABILITY
DATA SOURCE NO: FFI/NOTAT-88/6001
AUTHOR: P.B. STOREBO, T. BJORVATTEN
ORIGINATING ORG: NORWEGIAN DEFENCE RESEARCH ESTABLISHMENT (NDRE), KJELLER, NORWAY
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/02/15

COMMENTS: THIS REPORT PRESENTS THE INPUT AND OUTPUT DATA FOR A TEST RUN OF THE NORWEGIAN COMPUTER PROGRAM "GASRISK." "GASRISK" EVALUATES THE CHEMICAL RISK OR VULNERABILITY FOR A WELL SPECIFIED WAR-TIME DEFENSE POSITION. THE STRUCTURE OF GASRISK IS DISCUSSED BRIEFLY IN THIS REPORT. THE AUTHORS HOPE THAT THE TEST RUN PRESENTED FOR "GASRISK" DEMONSTRATES A PRACTICAL TOOL FOR MILITARY OPERATIONAL ANALYSIS. THE PROGRAM IS DEVELOPED FOR FIELD POSITIONS. APPENDICES CONTAIN THE INPUT AND OUTPUT FILES OF THE TEST CASE.

TITLE: VAPOR-PHASE DECONTAMINATION CONCEPT FOR AIRCRAFT,
DATA SOURCE NO: CRDEC-CR-88018
AUTHOR: P.L. KOEHMSTEDT, F.G. BURTON, R.C. COFFMAN, J.L. DAVIS, F.T. GIROD
ORIGINATING ORG: BATTELLE PACIFIC NORTHWEST LABORATORIES, RICHLAND, WA, AND BATTELLE COLUMBUS LABORATORIES, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: THE OBJECTIVE OF THIS STUDY WAS TO DETERMINE THE FEASIBILITY OF A VAPOR-PHASE DECONTAMINATION CONCEPT FOR AIRCRAFT AND/OR AIRCRAFT COMPONENTS. THE BASIC CONCEPT INVOLVES ENCLOSING THE AIRCRAFT INSIDE A PLASTIC BAG WITH RECIRCULATION CAPABILITY AND CLIMATE CONTROLS. NEXT, A GASEOUS DECONTAMINANT IS INTRODUCED INTO THE ENVIRONMENT CONTAINED IN THE PLASTIC BAG. MAJOR CONCLUSIONS OF THE STUDY ARE THAT THE CONCEPT SEEMS OPERATIONALLY FEASIBLE, BUT THE EFFECTIVENESS OF GASEOUS DECONTAMINANTS IS QUESTIONABLE. DATA PRESENTED INCLUDES EFFECTIVENESS OF GASEOUS DECONTAMINANTS AGAINST MUSTARD (HD) AND INTERACTION OF GASEOUS DECONTAMINANTS WITH TYPICAL AEROSPACE MATERIALS.

TITLE: CURRENT NEWS, SPECIAL EDITION (CALENDER YEAR 1988), NUMBERS 1687, 1702, 1720
ORIGINATING ORG: US AIR FORCE CURRENT NEWS ANALYSIS AND RESEARCH SERVICE, WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/01/01

COMMENTS: THE CURRENT NEWS IS A COMPILATION OF ITEMS OF INTEREST TO KEY DEPARTMENT OF DEFENSE (DOD) PERSONNEL. IT IS COMPOSED OF ARTICLES FROM NEWSPAPERS, NEWS-CASTS, AND PERIODICALS (EVERY ARTICLE IS FULLY CITED). THE SPECIAL EDITION ON CHEMICAL WARFARE (CW), PUBLISHED ABOUT FOUR TIMES YEARLY, CONTAINS ARTICLES RELATING TO ALL PHASES OF CHEMICAL AND BIOLOGICAL WARFARE (BW), INCLUDING: DEVELOPMENT, USE, TACTICS, CONTROLS, DEFENSE AGAINST EFFECTS, GOVERNMENT POLICIES, AMONG OTHERS. THIS COMPILATION CONTAINS THESE CURRENT NEWS SPECIAL EDITIONS: NUMBER 1687, 4 FEBRUARY 1988; NUMBER 1702, 17 MARCH 1988; AND NUMBER 1720, 28 APRIL 1988.

TITLE: TROOP PERFORMANCE DEGRADATION IN MISSION ORIENTED PROTECTIVE POSTURE LEVEL 4, COMMUNICATION OPERATIONS
DATA SOURCE NO: DPG-FR-88-701, ADB120117
AUTHOR: G.B. STACK, H.W. SAGER
ORIGINATING ORG: ANDRULIS RESEARCH CORPORATION, BETHESDA, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: THIS REPORT EXAMINES TROOP PERFORMANCE DEGRADATION OF RADIO TELETYPEWRITER (RATT) TEAMS OPERATING IN A SIMULATED TACTICAL ENVIRONMENT; SPECIFICALLY, THE ABILITY OF RATT TEAMS TO SET UP COMMUNICATIONS EQUIPMENT, TYPE WORD LISTS, AND BREAK DOWN COMMUNICATIONS EQUIPMENT. MISSION PERFORMANCE DEGRADATION WAS DETERMINED TO BE A FUNCTION OF LEVEL OF PROTECTION AND LEVEL OF EXPERIENCE. IT WAS DETERMINED THAT PERFORMANCE OF SOME TASKS ASSOCIATED WITH RATT OPERATIONS WERE DEGRADED, BUT DEGRADATION CAN BE REDUCED WITH ADDITIONAL EXPERIENCE/TRAINING IN MISSION ORIENTED PROTECTIVE POSTURE 4 (MOPP 4).

TITLE: POTENTIAL HAZARDS FROM MOVEMENT OF TRACKED (ARMORED) VEHICLES CROSSING A CHEMICAL WARFARE AGENT-CONTAMINATED AREA, DPG/TA-88/02
DATA SOURCE NO: ADB119976
AUTHOR: R.W. MENGEL, F. SHANTY, J. YOUNG
ORIGINATING ORG: EAI CORPORATION, ABINGDON, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/02/01

COMMENTS: THE REPORT EVALUATES THE PERSONNEL RISK ASSOCIATED WITH THE MOVEMENT OF SELECTED ARMORED TRACKED VEHICLES (M1, M2/M3, M60, M113) THROUGH TERRAIN CONTAMINATED WITH PERSISTENT CHEMICAL WARFARE (CW) AGENTS. THE STUDY CONSIDERS VARIOUS GROUND SURFACES, TACTICAL FORMATIONS, PERSONNEL RISKS, AND THE EFFECTS OF VEHICLES SPREADING THE CONTAMINATION TO OTHER VEHICLES. SIMULATION AND ANALYTICAL MODELING WERE USED TO GENERATE A WORST-CASE SCENARIO. RESULTS SUPPORT THE NEED FOR FUTURE EVALUATION OF THE

REQUIREMENTS FOR THE DEVELOPMENT OF A SYSTEM TO PROVIDE DETECTION AND WARNING WHILE MOVING THROUGH CONTAMINATED AREAS.

TITLE: AEROSOL CHALLENGE OF THE INDIVIDUAL PROTECTIVE ENSEMBLE, FIRST ANNUAL PROGRESS REPORT JULY 1985 - JULY 1986
DAT SOURCE NO: CRDEC-CR-88040
AUTHOR: J.T. HANLEY
ORIGINATING ORG: RESEARCH TRIANGLE INSTITUTE, RESEARCH TRIANGLE PARK, NC FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/02/01

COMMENTS: THE OBJECTIVE OF THIS THREE YEAR WIND TUNNEL TEST PROGRAM IS TO DETERMINE THE EXTENT TO WHICH WIND-DRIVEN AEROSOLS (0.1 TO 10 MICRON DIAMETER RANGE) PENETRATES THROUGH AND DEPOSIT WITHIN, THE FABRIC OF THE IPE (INDIVIDUAL PROTECTIVE ENSEMBLE). THIS REPORT SUMMARIZES WORK PERFORMED DURING THE FIRST YEAR. TESTS WILL BE CONDUCTED IN A SIX FOOT DIAMETER WIND TUNNEL WITH WIND SPEEDS UP TO FORTY MILES-PER-HOUR (MPH), ALONG WITH TEMPERATURE AND HUMIDITY CONTROL. TESTS WILL QUANTIFY AEROSOL PENETRATION THROUGH THE IPE AND AEROSOL DEPOSITION BOTH IN THE IPE FABRIC AND ON THE SKIN OF A MANIKIN. AEROSOL PENETRATION/DEPOSITION WILL BE EVALUATED AS A FUNCTION OF: WIND SPEED, AEROSOL SIZE, AEROSOL PHASE, TEMPERATURE, HUMIDITY, IPE FABRIC MOISTURE CONTENT, ORIENTATION OF IPE TO THE WIND, AND MOTION OF THE MANIKIN. PRELIMINARY TEST RESULTS ON AEROSOL PENETRATION THROUGH IPE FABRIC AND AEROSOL DEPOSITION ON SKIN ARE PRESENTED.

TITLE: PHASE 1 FINAL COMPREHENSIVE REPORT CB MINI-DETECTOR EXPLORATORY DEVELOPMENT
DAT SOURCE NO: CRDEC-CR-88043
AUTHOR: T.J. CARROLL, J.R. HUMPHREYS, D.E. LEWIS, F.M. MCALLISTER, G.C. MISENER, J.C. PATTON, J.C. SCHMIDT, B.W. SHINGLETON, R.R. THOMAS
ORIGINATING ORG: ALLIED-BENDIX ENVIRONMENTAL SYSTEMS DIVISION, BALTIMORE MD FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/03/01

COMMENTS: THIS REPORT DESCRIBES DEVELOPMENT OF A CONCEPT MODEL FOR A CHEMICAL/BIOLOGICAL AGENT MINI-DETECTOR. THE DEVELOPMENT WAS THE FIRST PHASE OF AN EXPLORATORY PROGRAM AND IS AN OUTGROWTH OF THE RECONNAISSANCE, DETECTION, AND IDENTIFICATION (RDI) MASTER PLAN. THE MINI-DETECTOR TO BE DEVELOPED UNDER THIS PROGRAM WILL BE A SMALL MAN-PORTABLE DEVICE WITH SENSORS FOR AEROSOLS, DROPLETS, AND VAPORS OF CHEMICAL, BIOLOGICAL, AND TOXIN (CBT) AGENTS PRESENT IN THE AMBIENT AIR. THE CONCEPT MODEL DEVELOPED IS COMPRISED

OF THREE MODULES, THE CHASSIS, THE CHEMICAL SENSOR, AND THE BIOSENSOR. THIS REPORT AND ITS APPENDICES CONTAIN TEST RESULTS, EXPERIMENTAL PROCEDURES, AND ENGINEERING ANALYSIS FOR THE SENSOR TECHNOLOGIES CONSIDERED.

TITLE: AIRLOCK VAPOR REMOVAL BY AEROSOLS
DATA SOURCE NO: CRDEC-CR-88024
AUTHOR: S.C. YUNG
ORIGINATING ORG: CALVERT, INC., SAN DIEGO, CA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: THE OBJECTIVES OF THIS STUDY WERE TO DEVELOP AN AEROSOL GENERATOR AND TO DEMONSTRATE, WITH FULL-SCALE PROTOTYPES, ITS FEASIBILITY AND EFFECTIVENESS FOR REMOVING TOXIC VAPORS FROM VARIOUS AIRLOCKS AND FIXED-SITE SHELTERS. SPRAYING WATER INTO THE AIRLOCK IN ADDITION TO AIR PURGING WAS FOUND TO BE EFFECTIVE IN SPEEDING UP THE PERSONNEL TRANSFER RATE BY ABOUT 1.5 MINUTES FOR ALL AIRLOCKS TESTED. AIR PURGE ONLY TRANSFER RATES WERE ABOUT ONE PERSON PER FIVE MINUTES. THE OPTIMAL SPRAYING TIME AND RATE WERE THIRTY SECONDS AND 0.1 GPM, RESPECTFULLY. ADDING FIVE PERCENT (BY WEIGHT) OCTYLPRYIDINIUM 4-ALDOXIME BROMIDE (A DECONTAMINATION REAGENT) TO WATER HAD NO EFFECT IN REMOVING AGENT SIMULANTS TEP AND DMMP. AIRLOCK OCCUPANCY AND AIR TEMPERATURE HAD NEGLIGIBLE EFFECT ON AGENT SIMULANT VAPOR REMOVING RATE.

TITLE: PRELIMINARY RISK ASSESSMENT FOR QL AND DC PRODUCTION
DATA SOURCE NO: CRDEC-CR-88025
AUTHOR: S. CRAGG, T.M. BRIGGS, R.J. CAPRARA, P. FRANSIOLI, I.L. MANDELBAUM, S.P. YOUNG, K.M. BUCHI, E.L. OLAJOS
ORIGINATING ORG: ROY F. WESTON, INC., WEST CHESTER, PA FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/01/01

COMMENTS: THIS REPORT EVALUATES THE POSSIBLE ADVERSE CONSEQUENCES TO HUMAN HEALTH ASSOCIATED WITH PRODUCTION OF METHYLPHOSPHONIC DICHLORIDE (DC) AND O-2-DIISOPROPYL-AMINOETYL)-O'-ETHYL-METHYLPHOSPHONITE (QL) FOR THE DEPARTMENT OF DEFENSE'S (DOD'S) BINARY MUNITIONS PROGRAM. TOPICS INCLUDE: RELEASE AND MEDIA CONTAMINATION SCENARIOS; SELECTION OF INDICATOR CHEMICALS; TOXICOLOGY AND FATE OF INDICATOR CHEMICALS; ADOPTING SAFE EXPOSURE LEVELS/DERIVING TENTATIVE LEVELS; AND MODELING MEDIA TRANSPORT OF DC AND QL PROCESS INDICATOR CHEMICALS.

TITLE: DECONTAMINATION/CONTAMINATION CONTROL MASTER PLAN
DATA SOURCE NO: CRDEC-CR-86021, ADB120161
AUTHOR: S.M. KENNEY-GARRETT, S.M. TAUSCHEK, G.G. OUTTERSON, L. CRAWFORD-MOSS, J.D. WALTHER
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: IN THIS STUDY, CURRENTLY FIELDED, DEVELOPMENTAL, AND EMERGING DECONTAMINATION (DECON) TECHNOLOGIES WERE EVALUATED WITH RESPECT TO USER-DEFINED BATTLEFIELD PERFORMANCE CRITERIA. COMBINATIONS OF TECHNOLOGIES WERE ALSO ASSESSED. EACH CANDIDATE TECHNOLOGY WAS RATED IN THIRTY-FIVE PERFORMANCE CRITERIA AND ASSIGNED A SCORE COMPUTED FROM THOSE RATINGS. BASED ON THE RESULTING SCORES, THE MOST PROMISING TECHNOLOGIES WERE: AN EMULSION FOR DELIBERATE DECON; A SACRIFICIAL COATING FOR HASTY DECON; A SORBENT (REACTIVE SOLID) FOR BASIC SOLDIER SKILLS; AND CATALYSIS FOR INCREASED EFFECTIVENESS OF ALL DECON OPERATIONS. APPENDICES INCLUDE: ACTIVITIES AND DECISIONS FOR BATTLEFIELD SITUATIONS WITH RESPECT TO DECONTAMINATION; TECHNOLOGY EVALUATION SHEETS (WITH SCORING); AND STATISTICAL ANALYSIS OF THE SCORES.

TITLE: AMPHIBIOUS OPERATIONS IN A CHEMICALLY CONTAMINATED ENVIRONMENT, PHASE II, VOLUME I. FINAL REPORT.
DATA SOURCE NO: DPG-FR-88-902
AUTHOR: C.O. ECKARD, A. BARRY, J.D. TRETHEWEY, D.G. BOYLE, G.B. STACK
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT; CONTRACTOR: ANDRULIS RESEARCH CORPORATION, BETHESDA, MD
CLASSIFICATION: SECRET
DOCUMENT DATE: 88/03/01

COMMENTS: THIS REPORT ADDRESSES THE EFFECTS OF CHEMICAL PROTECTIVE CLOTHING ON SELECTED OPERATIONS AND THE IMPACT ON THE NAVY'S ABILITY TO CONDUCT AN AMPHIBIOUS ASSAULT. OPERATIONS INCLUDED MOVEMENT OF TROOPS AND SUPPLIES TO SHORE AND EVACUATING CASUALTIES BACK TO THE HOSPITAL SHIP. OTHER SELECTED OPERATIONS WERE LOOKED AT ABOARD SHIP AND ON THE BEACH. THE DATA ARE MAINLY FROM PARTICIPANT QUESTIONNAIRES AND EVALUATOR RATINGS; SOME TIME DATA FROM SELECTED OPERATIONS WERE ALSO OBTAINED.

TITLE: CHEMICAL COMPUTER MAN: CHEMICAL AGENT RESPONSE SIMULATION (CARS).
DATA SOURCE NO: CRDEC-TR-88067, ADA193850
AUTHOR: E.G. DAVIS, R.J. MIODUSZEWSKI
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

(CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/03/01

COMMENTS: THIS REPORT DESCRIBES A COMPUTER MODEL AND SIMULATION PROGRAM FOR ESTIMATING THE DYNAMIC CHANGES IN HUMAN PHYSIOLOGICAL DYSFUNCTION RESULTING FROM EXPOSURES TO CHEMICAL THREAT NERVE AGENTS. FIVE PHYSIOLOGICAL FUNCTIONS ARE CONSIDERED: MENTAL, VISION, CARDIO-RESPIRATORY, VISCERAL, AND LIMBS. THE SIMULATION INCORPORATES MATHEMATICAL MODELS AND BASIC PHARMACOKINETIC PRINCIPLES SO THAT FOR EACH CHEMICAL EXPOSURE, THE RELATIONSHIP BETWEEN EXPOSURE DOSAGE, ABSORBED DOSAGE, AND LEVEL OF PHYSIOLOGICAL RESPONSE ARE COMPUTED AS A FUNCTION OF TIME. CARS (CHEMICAL AGENT RESPONSE SIMULATION) IS AN INTERACTIVE PROGRAM WRITTEN IN FORTRAN. THE REPORT DOCUMENTS SOME OF THE METHODOLOGY, AND SOURCE CODE IS PROVIDED.

TITLE: NEW DEVELOPMENTS IN CHEMICAL-BIOLOGICAL MATERIAL
DATA SOURCE NO: CRDEC-SP-88014
AUTHOR: M.H. EDDY
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: THIS REPORT PROVIDES BACKGROUND AND REFERENCE INFORMATION TO PERSONNEL INVOLVED IN THE MATERIAL ACQUISITION PROCESS. THE REPORT WILL ALSO INFORM OPERATIONS AND SCHOOL PERSONNEL OF ITEMS CURRENTLY UNDER DEVELOPMENT AND MATERIAL RECENTLY TYPE CLASSIFIED TO BE FIELDED IN THE NEAR FUTURE. THE DATA PRESENTED FOR EACH ITEM INCLUDE: A BRIEF TECHNICAL DESCRIPTION, INFORMATION ON DEVELOPMENT STATUS, INFORMATION ON USE, AND PHOTOGRAPHS OR DRAWINGS. SOME ITEMS PRESENTED ARE: M43A1 AUTOMATIC CHEMICAL AGENT MONITOR (CAM), XM22 AUTOMATIC CHEMICAL AGENTS ALARM, FUCHS NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) RECONNAISSANCE SYSTEM, BLU-801B BIGEYE BOMB, AND THE M256E2 CHEMICAL AGENT WATER TEST KIT.

TITLE: USER MANUAL FOR THE FSCBG AIRCRAFT SPRAY AND DISPERSION MODEL, VERSION 2.0.
DATA SOURCE NO: DPG/TA-88/015
AUTHOR: J.R. BJORKLUND, C.R. BOWMAN, G.C. DODD
ORIGINATING ORG: H.E. CRAMER COMPANY, INC., SALT LAKE CITY, UT FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UTAH
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/03/01

COMMENTS: THE FSCBG (FOREST SERVICE CRAMER-BARRY-GRIM) COMBINES AND IMPLEMENTS MATHEMATICAL MODELS FOR AIRCRAFT WAKE EFFECTS, LINE-SOURCE DISPERSION, DROP EVAPORATION, AND CANOPY PENETRATION. THE COMPUTER PROGRAM IS

DESIGNED TO ACCOUNT FOR THE ATMOSPHERIC DISPERSION, TRANSPORT, AND DEPOSITION OF ALL AERIAL SPRAY MATERIAL FROM THE TIME OF RELEASE UNTIL ALL SPRAY MATERIAL IS EITHER DEPOSITED OR, IN THE CASE OF SPRAY DRIFT, UNTIL THE SPRAY CONCENTRATION AND DEPOSITION LEVELS BECOME INSIGNIFICANT. SPECIFIC CALCULATIONS MADE BY THE COMPUTER PROGRAM INCLUDE SPRAY CONCENTRATIONS AND DOSAGES ABOVE FOREST CANOPIES AS WELL AS THE SPRAY DEPOSITION WITHIN AND BELOW FOREST CANOPIES RESULTING FROM AERIAL SPRAY RELEASES MADE ALONG SINGLE OR MULTIPLE FLIGHT PATHS. APPLICATIONS OF THE COMPUTER PROGRAM ARE THE OPTIMIZATION OF SPRAY PROGRAM DESIGN, FLIGHT ALTITUDES, SWATH WIDTHS, SPRAY RATES, AND SCHEDULING OF SPRAY OPERATIONS; EVALUATION AND ANALYSIS OF FIELD MEASUREMENTS OF SPRAY DEPOSITION; ASSESSMENTS OF THE ENVIRONMENTAL IMPACT OR HAZARD POSED BY AERIAL SPRAY OPERATIONS; AND ASSESSMENTS OF THE EFFECTIVENESS OF CHEMICAL WARFARE AND DEFENSE STRATEGIES. REPORT CONTAINS SAMPLE CASES, METEOROLOGICAL DATA, AND A DESCRIPTION OF THE CANOPY PENETRATION MODEL. NO OTHER DATA OR MODEL DESCRIPTION ARE INCLUDED.

TITLE: PENETRATION OF CAVES AND TUNNELS BY CHEMICAL AGENTS.
DATA SOURCE NO: DPG/TA-88/020, ADB122063
AUTHOR: B.S. GRIM
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/05/01

COMMENTS: THIS REPORT SUMMARIZES INFORMATION OF THE EFFECTS OF CHEMICAL WEAPONS USED AGAINST PERSONNEL IN SIMPLE TUNNELS OR CAVES. GUIDELINES ARE GIVEN FOR ATTACKING SUCH FORTIFICATIONS AND EXISTING PROCEDURES FOR COMPUTING EXPECTED CASUALTIES ARE RECOMMENDED FOR APPLICABLE SITUATIONS. REPORT SUGGESTS THE USE OF HIGH VOLATILITY AGENTS DUE TO THE INABILITY OF FINE AEROSOL AGENTS SUCH AS VX TO PENETRATE COVERED FIELD POSITIONS. DATA IS FROM 20 YEAR OLD FIELD TESTS. REPORT CONTAINS SUMMARIES AND REFERENCES TO FIELD TRIALS.

TITLE: MINUTES OF RESIDUAL AGENT AND CONTACT HAZARD WORKSHOP.
DATA SOURCE NO: CRDEC-SP-88017, ADB121454
AUTHOR: A.K. STUEMPFLE, J.M. KLEIN
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: CONTACT HAZARD IS DEFINED FOR THIS WORKSHOP AS THE HAZARD PRESENTED BY RESIDUAL CHEMICAL AGENT ON OR IN SURFACES FOLLOWING REMOVAL OR DECONTAMINATION IN THE BULK SURFACE CONTAMINATION. AMONG THE TOPICS ADDRESSED WERE DISCUSSION PAPERS REGARDING (A) PROCESS OF CONTACT HAZARD, (B) DETECTION OF RESIDUAL AGENT/HAZARD LEVELS, (C) DURATION OF

RESIDUAL CONTAMINATION, (D) ENVIRONMENT FATE OF AGENT, (E) ADDITIONAL DECONTAMINATION REQUIREMENTS, (F) MECHANISMS OF SKIN PENETRATION, (G) HAZARD LEVEL REQUIREMENTS FROM AR 70-71, AND H) MODELING OF CONTACT HAZARD. THIS DOCUMENT SUMMARIZES THE FINDINGS AND PROVIDES ABSTRACTS OF THE PRESENTED PAPERS.

TITLE: PRODUCTIBILITY ASSESSMENT OF PHYSICAL PROTECTION EMERGING TECHNOLOGY.
DATA SOURCE NO: CRDEC-CR-88078
AUTHOR: A.C. SCHULTZ, J.J. REIDY, R.K. SMITH
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/06/01

COMMENTS: THIS DOCUMENT SUMMARIZES THE RESULTS OF A PRODUCIBILITY ASSESSMENT MADE ON SOME OF THE EMERGING PHYSICAL PROTECTION TECHNOLOGIES. DECONTAMINATION, COLLECTIVE AND INDIVIDUAL PROTECTION TECHNOLOGIES ARE REVIEWED. THE DECONTAMINATION TECHNOLOGIES ASSESSED ARE FULL CATALYTIC EMULSION DECONTAMINATE, PARTIAL CATALYTIC EMULSION DECONTAMINANT, SACRIFICIAL (STRIPPABLE) COATINGS, SELF-DECONTAMINATING COATINGS, AND SORBENT POWDERS. COLLECTIVE PROTECTION TECHNOLOGIES ASSESSED ARE TEMPERATURE SWING ABSORPTION, HIGH PRESSURE FILTRATION, PLASMA REACTOR DECOMPOSITION, IMPROVED SORBENTS, AND AIRLOCK DECONTAMINATION USING AEROSOLS. M40/43 MASK LENS, CANISTER INTERPRETABILITY OPTIONS, AND POSITIVE PRESSURE BLOWERS ARE THE INDIVIDUAL PROTECTION TECHNOLOGIES ASSESSED. RESULTS AND CONCLUSIONS OF THE ASSESSMENT, AND DESCRIPTION OF THE PROGRAM METHODOLOGY ARE PRESENTED.

TITLE: AMPHIBIOUS OPERATIONS IN A CHEMICALLY CONTAMINATED ENVIRONMENT, PHASE II, VOLUME I. FINAL REPORT
DATA SOURCE NO: DPG-FR-88-902
AUTHOR: C.O. ECKARD, A. BARRY, J.D. TRETHEWEY, D.G. BOYLE, G.B. STACK
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT; CONTRACTOR: ANDRULIS RESEARCH CORPORATION, BETHESDA, MD
CLASSIFICATION: SECRET
DOCUMENT DATE: 88/03/01

COMMENTS: THIS REPORT ADDRESSES THE EFFECTS OF CHEMICAL PROTECTIVE CLOTHING ON SELECTED OPERATIONS AND THE IMPACT ON THE NAVY'S ABILITY TO CONDUCT AN AMPHIBIOUS ASSAULT. OPERATIONS INCLUDED MOVEMENT OF TROOPS AND SUPPLIES TO SHORE AND EVACUATING CASUALTIES BACK TO THE HOSPITAL SHIP. OTHER SELECTED OPERATIONS WERE LOOKED AT ABOARD SHIP AND ON THE BEACH.

THE DATA ARE MAINLY FROM PARTICIPANT QUESTIONNAIRES AND EVALUATOR RATINGS; SOME TIME DATA FROM SELECTED OPERATIONS WERE ALSO OBTAINED.

TITLE: PRELIMINARY EXPLORATION OF THE USE OF A WARFARE SIMULATION MODEL TO EXAMINE THE MILITARY VALUE OF TRAINING.
DATA SOURCE NO: IDA-P-2094
AUTHOR: S.J. DEITCHMAN
ORIGINATING ORG: INSTITUTE FOR DEFENSE ANALYSES (IDA), ALEXANDRIA, VA FOR OFFICE OF THE UNDER SECRETARY OF DEFENSE FOR ACQUISITION (OUSD(A)), WASHINGTON, DC
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/03/01

COMMENTS: THIS PAPER EXAMINES TECHNIQUES TO ASSESS THE MILITARY VALUE OF UNIT TRAINING USING A LARGE SCALE COMPUTER SIMULATION MODEL (TACWAR). THIS PRELIMINARY EFFORT CONSISTED OF SENSITIVITY RUNS OF THE TACWAR MODEL IN WHICH INPUT PARAMETERS WERE VARIED TO REFLECT POSTULATED EFFECTS OF UNIT TRAINING LEVELS. THE MODEL REPRESENTS A EUROPEAN SCENARIO AND ITS PRIMARY OUTPUT INCLUDES AVERAGE MOVEMENT OF THE FORWARD EDGE OF THE BATTLE AREA (FEBA) AS A FUNCTION OF TIME. TYPES OF UNITS AND MISSIONS CONSIDERED IN THE ANALYSIS INCLUDED: FIGHTER AIRCRAFT SQUADRONS IN AIR-TO-AIR COMBAT; AIRCRAFT SQUADRONS IN GROUND ATTACK; AIRCRAFT GROUND CREW PERFORMANCE (SORTIE GENERATION); TANK BATTALIONS IN GROUND COMBAT; AND ARTILLERY BATTERIES IN COMBAT.

TITLE: LITERATURE SURVEY OF DATA ON NONAQUEOUS CLEANING SYSTEMS PHASE II.
DATA SOURCE NO: CRDEC-CR-88060
AUTHOR: J.M. TIERNEY, T.E. HILL, R.J. CERAR
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION, COLUMBUS, OH FOR CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/05/01

COMMENTS: THIS DOCUMENT SUMMARIZES A LITERATURE SEARCH FOR DOCUMENTS ON NONAQUEOUS CLEANING AND DECONTAMINATION FOR INCLUSION IN THE CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) DOCUMENT RETRIEVAL SYSTEM. FROM SIX COMMERCIAL DATA BASES (CHEMICAL ABSTRACTS, CLAIMS, COMPENDEX, DEFENSE TECHNICAL INFORMATION CENTER (DTIC), ENGINEERING MEETINGS, AND NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)), 1520 CITATIONS WERE FOUND, 183 DOCUMENTS WERE ORDERED FOR REVIEW, AND 124 WERE CONSIDERED SUITABLE FOR INCLUSION IN THE CRDEC DATA BASE. DOCUMENT NAMES, REPORT NUMBERS, AUTHORS, AND DOCUMENT DATES ARE GIVEN.

TITLE: DECONTAMINATION EFFECTS ON 60-MM MORTAR CARTRIDGES AND COMPONENTS
DATA SOURCE: DPG-FR-87-303
AUTHOR: K.P. JONES, D.P. BACON
ORIGINATING ORG: ANDRULIS RESEARCH CORPORATION [illegible]A, MA FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: THIS REPORT DESCRIBES TESTING OF THE EFFECTS OF STANDARD CHEMICAL WARFARE (CW) DECONTAMINANTS ON ARTILLERY COMPONENTS OF PROJECTILES. M720 60MM MORTAR CARTRIDGES PLUS COMPONENTS WERE CHALLENGED BY DECONTAMINANTS DS-2, STB (SUPER TROPICAL BLEACH) SLURRY, AND DRY STB. MUNITIONS WERE INSPECTED, CHALLENGED, AND FIRED TO DETERMINE WHETHER THE DECONTAMINANTS AFFECTED VELOCITY, RANGE, DEFLECTION, FUNCTION OR PHYSICAL CHARACTERISTICS OF THE CARTRIDGES. RESULTS INDICATE THAT DS-2 DISSOLVES PAINTS, MARKINGS, AND LABELS; STB SLURRY MAY INTERFERE WITH FREE FUSE TURBINE MOVEMENT, MAY PENETRATE PROPELLANT CHARGE INCREMENTS, AND MAY CAUSE DOWNRANGE CARTRIDGE MALFUNCTIONS; DRY STB MAY CAUSE DOWNRANGE CARTRIDGE MALFUNCTIONS, DATA PRESENTED INCLUDE DESCRIPTION OF THE M720, EFFECTS OF DECONTAMINANTS ON ITS PERFORMANCE, PHOTOGRAPHS SHOWING THE PHYSICAL EFFECTS OF DECONTAMINANTS ON COMPONENTS, AND FIRING DATA.

TITLE: PROTECTION FROM AERIAL SPRAY AFFORDED TROOPS BY A DECIDUOUS CANOPY
DATA SOURCE NO: DPG/TA-88/13
AUTHOR: W.E. NEWTON
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: THIS REPORT PRESENTS RESULTS FROM AN AERIAL SPRAY EXPERIMENT CONDUCTED IN AN ALMOND TREE ORCHARD TO STUDY THE PENETRATION OF SPRAY INTO A BROADLEAF CANOPY. SPRAY WAS DELIVERED USING FIXED WING AND HELICOPTER AGRICULTURAL SPRAY AIRCRAFT. DROPLET COUNTS, DROP SIZE, AND SPRAY MASS MEASUREMENTS WERE MADE AT SEVERAL HEIGHTS. THE DECIDUOUS FOREST UTILIZED IN THIS TEST REDUCED CONTAMINATION DENSITY LEVELS BY A FACTOR OF APPROXIMATELY SIX AS COMPARED TO OPEN TERRAIN. RAW DATA IS INCLUDED.

TITLE: RELIABILITY OF M256 CHEMICAL AGENT DETECTOR KIT AT EXTREME ENVIRONMENTAL TEMPERATURES
DATA SOURCE NO: DPG/TA-88/07, ADB119415
AUTHOR: C.K. RAMACHANDRAN
ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/02/01

COMMENTS: THE M256 CHEMICAL AGENT DETECTOR KIT IS USED TO DETECT AND CLASSIFY HAZARDOUS CONCENTRATIONS OF NERVE, BLISTER, AND BLOOD AGENTS IN VAPOR AND LIQUID STATES. THIS DEVICE HAS BEEN TESTED AND SHOWN TO BE RELIABLE IN A WIDE RANGE OF CLIMATIC CONDITIONS. HOWEVER, AT EXTREME COLD TEMPERATURES, THE KIT NEEDS TO BE KEPT WARM TO ENSURE THAT ALL OF THE REAGENTS ARE IN A LIQUID STATE. IN HOT CLIMATES, THE EVAPORATION OF THE REAGENTS CAN BECOME A PROBLEM ESPECIALLY WHEN THE WIND VELOCITY IS HIGH. INSTRUCTIONS ON THE USE OF THE M256 KIT UNDER EXTREME TEMPERATURES ARE GIVEN IN OPERATOR'S MANUAL, TM 3-6665-307-10 (SEPTEMBER 1985). THE INSTRUCTIONS GIVEN IN FM 3-4 TO DISCARD THE FROZEN KIT ARE WRONG. THE KITS CAN BE USED AFTER THEY ARE THAWED.

TITLE: DECONTAMINATION EFFECTS ON ARTILLERY COMPONENTS FOR 155-MM AND 105-MM MUNITIONS
DATA SOURCE NO: DPG-FR-87-004
AUTHOR: K.P. JONES, D.P. BACON
ORIGINATING ORG: ANDRULIS RESEARCH CORPORATION, BETHESDA, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/01/01

COMMENTS: THIS REPORT DESCRIBES TESTING OF THE EFFECTS OF STANDARD CHEMICAL WARFARE (CW) DECONTAMINANTS ON ARTILLERY COMPONENTS OF PROJECTILES. M107 155-MM, M577 MECHANICAL-TIME-SUPERQUICK FUSES, M557 POINT-DETONATING FUSES, AND M1 105-MM CARTRIDGES PLUS COMPONENTS WERE CHALLENGED BY DECONTAMINANTS DS-2, STB (SUPER TROPICAL BLEACH) SLURRY, AND DRY STB. MUNITIONS WERE INSPECTED, CHALLENGED, AND FIRED TO DETERMINE WHETHER THE DECONTAMINANTS AFFECTED VELOCITY, RANGE, DEFLECTION, FUNCTION, OR PHYSICAL CHARACTERISTICS OF PROJECTILES AND CARTRIDGES. OBSERVATIONS SHOWED THE TENDENCY OF DS-2 TO DISSOLVE PAINT, CORRODE COMPONENTS, AND PENETRATE BOTH M105-MM CARTRIDGE CASES AND M82 PRIMERS; STB SLURRY TO COLLECT AROUND CRITICAL COMPONENTS, POSSIBLE REDUCING THE RANGE OF 105-MM CARTRIDGES; AND DRY STB TO POSSIBLY INTERFERE WITH FUSE SETTING AND DOWNRANGE FUNCTIONING. DATA PRESENTED INCLUDE DESCRIPTIONS OF COMPONENTS, EFFECTS OF DECONTAMINANTS ON MUNITION PERFORMANCE, PHOTOGRAPHS SHOWING THE PHYSICAL EFFECTS OF DECONTMANINANTS ON COMPONENTS, AND FIRING DATA.

TITLE: ADVANCED HUMAN FACTORS ENGINEERING TOOL TECHNOLOGIES
DATA SOURCE NO: HEL-TM-2-88
AUTHOR: S.A. FLEGER, K.E. PERMENTER, T.B. MALONE
ORIGINATING ORG: CARLOW ASSOCIATES INC., FAIRFAX, VA FOR US ARMY HUMAN ENGINEERING LABORATORY (HEL), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/03/01

COMMENTS: THIS REPORT IDENTIFIES THE HUMAN FACTORS ENGINEERING TECHNOLOGIES OR TOOLS PRESENTLY USED, AND PROJECTED FOR USED BY HUMAN FACTORS (HF) SPECIALISTS. BOTH TRADITIONAL AND ADVANCED TOOLS WERE INCLUDED IN THE REPORT, ALTHOUGH THE EMPHASIS WAS ON ADVANCED COMPUTER APPLICATIONS. HUMAN FACTORS PRACTITIONERS REPRESENTING THE GOVERNMENT, THE MILITARY, ACADEMIA, AND PRIVATE INDUSTRY WERE SURVEYED TO IDENTIFY THOSE TOOLS THAT ARE MOST FREQUENTLY USED OR VIEWED AS MOST IMPORTANT FOR CONDUCTING HUMAN FACTORS ENGINEERING-RELATED WORK. IF ADVANCED TOOLS CAPABILITIES DID NOT MEET EXISTING JOB REQUIREMENTS, THE SPECIALISTS IDENTIFIED THE TYPES OF TOOLS THEY WOULD LIKE TO SEE DEVELOPED TO FILL THE EXISTING TECHNOLOGY GAPS. THE ADVANCED TOOLS WERE CATEGORIZED USING AN EIGHT-POINT CLASSIFICATION SCHEME THAT INCLUDED THE PHASE(S) OF THE MATERIAL ACQUISITION PROCESS IN WHICH THE TOOL'S APPLICATION WOULD BE MOST APPROPRIATE. THE TOOLS WERE PRIORITIZED TO FACILITATE TOOLS SELECTION AND ENTERED INTO A DATA BASE THAT COULD ACCOMMODATE FUTURE REVISIONS. THE STUDY RESULTED IN THE IDENTIFICATION OF 113 ADVANCED HUMAN FACTORS ENGINEERING TOOLS.

TITLE: PROCEEDINGS OF THE 1987 US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE RESEARCH, 17 - 20 NOVEMBER 1987, VOLUME 1
DATA SOURCE NO: CRDEC-SP-88013, ADB121448
AUTHOR: M.D. RAUSA
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: THIS IS VOLUME I OF THE US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE (CD). IT CONTAINS PAPERS PRESENTED ON THE TOPICS OF: DECONTAMINATION; BIOTECHNOLOGY; TOXICOLOGICAL AND ENVIRONMENTAL STUDIES; DETECTION; FLUID DYNAMICS; PROTECTION; AND SYNTHESIS AND PROPERTIES.

TITLE: PROCEEDINGS OF THE 1987 US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE RESEARCH, VOLUME 2, 17 - 20 NOVEMBER 1987
DATA SOURCE NO: CRDEC-SP-88013, ADB121449
AUTHOR: M.D. RAUSA
ORIGINATING ORG: CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC), ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: THIS IS VOLUME II OF THE US ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (CRDEC) SCIENTIFIC CONFERENCE ON CHEMICAL DEFENSE (CD). IT CONTAINS PAPERS ON THE TOPIC OF MATERIALS, IN ADDITION TO

POSTER SESSIONS ON THE TOPICS OF: DECONTAMINATION; BIOTECHNOLOGY; TOXICOLOGY AND ENVIRONMENT; DETECTION; FLUID DYNAMICS; PROTECTION; SYNTHESIS AND PROPERTIES; AND MATERIALS.

TITLE: TROOP PERFORMANCE DEGRADATION IN MISSION ORIENTED PROTECTIVE POSTURE LEVEL 4, ARMOR OPERATIONS II
DATA SOURCE NO: DPG-FR-88-905
AUTHOR: G.B. STACK, A.A. BARRY, J.J. ENWRIGHT, B.C. HENRY, D.L. WELCH
ORIGINATING ORG: ANDRULIS RESEARCH CORPORATION, BETHESDA, MD FOR US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: THIS REPORT IS PART OF A PROJECT D049 PROGRAM TO EVALUATE MISSION DEGRADATION ASSOCIATED WITH WEARING THE MISSION ORIENTED PROTECTION POSTURE LEVEL 4 (MOPP 4) ENSEMBLE. THE ABILITY OF A TANK PLATOON TO PERFORM FIVE PHASE OF OPERATION WAS EXAMINED: DEFENSIVE PLANNING AND PREPARATION, MOVEMENT FROM ASSEMBLY AREA TO BATTLE POSITION, ENEMY ENGAGEMENT, MOVEMENT TO AN ALTERNATE ASSEMBLY AREA, AND CONSOLIDATION. DEGRADATION AS A FUNCTION OF THE LEVEL OF PROTECTION, DURATION OF OPERATION (LENGTH OF TIME IN MOPP 4), AND LEVEL OF EXPERIENCE IN MOPP 4 WAS ASSESSED.

TITLE: AN ANNOTATED BIBLIOGRAPHY ON OPERATOR MENTAL WORKLOAD ASSESSMENT
DATA SOURCE NO: TECHNICAL NOTE 7-88
AUTHOR: J.K. SCHMIDT, H.M. NICEWONGER
ORIGINATING ORG: US ARMY HUMAN ENGINEERING LABORATORY, ABERDEEN PROVING GROUND, MD
CLASSIFICATION: UNCLASSIFIED
DOCUMENT DATE: 88/08/01

COMMENTS: AN ANNOTATED BIBLIOGRAPHY ON OPERATOR MENTAL WORKLOAD ASSESSMENT IS PROVIDED WITH CORRESPONDING DOCUMENTATION TO ENHANCE ITS UTILITY AS A REFERENCE. FOR THE MOST PART, REFERENCES PUBLISHED BETWEEN THE YEARS 1980 AND 1986 ARE INCLUDED. EACH OF THE 206 CITATIONS PRESENTED FROM THE LITERATURE CONTAIN REFERENCE INFORMATION AS WELL AS AN ABSTRACT. ALL LISTINGS ARE INDEXED BY BOTH AUTHOR AND SUBJECT.

TITLE: EFFECTS ON ELECTRONIC EQUIPMENT OF CHEMICAL WARFARE AGENT DECONTAMINANTS
DATA SOURCE NO: DPG/TA-88/14
AUTHOR: W.C. CHRISTIANSEN

ORIGINATING ORG: US ARMY DUGWAY PROVING GROUND (DPG), DUGWAY, UT
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: THIS REPORT IS AN ASSESSMENT OF THE CURRENT STATUS OF ELECTRONIC EQUIPMENT DECONTAMINATION, BASED ON A LITERATURE SEARCH AND INTERVIEWS. RADARS, RADOMES, ANTENNAS, CIRCUIT BOARDS, RADIOS, AND OTHER COMPONENTS OF ELECTRONIC EQUIPMENT ARE VULNERABLE TO CHEMICAL WARFARE (CW) AGENT CONTAMINATION. HOWEVER, FEW TECHNOLOGIES ARE CURRENTLY AVAILABLE FOR DECONTAMINATING ELECTRONIC EQUIPMENT. THIS REPORT GIVES THAT STATUS OF DEVELOPMENTAL ELECTRONIC EQUIPMENT DECONTAMINATION CONCEPTS, INCLUDING HOT GAS, FREON 113, OZONE/FLUOROCARBON/ULTRAVIOLET RADIATION, ULTRAVIOLET LIGHT, ULTRASOUND, INFRARED RADIATION, VENTILATION, AND DIMETHYLSULFOXIDE (DMSO). NO DATA IS PRESENTED, BUT MANY REFERENCES ARE INCLUDED.

TITLE: METHODOLOGY USED FOR CAPABILITY ASSESSMENTS OF FORCES AFLOAT TO CHEMICAL AND BIOLOGICAL THREATS
DATA SOURCE NO: NSWC-TR-88-161
AUTHOR: T.J. YENCHA, P.R. KIRK
ORIGINATING ORG: NAVAL SURFACE WARFARE CENTER (NSWC), DAHLGREN, VA
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/07/01

COMMENTS: THIS REPORT DOCUMENTS A SET OF MODELS USED TO PREDICT CHEMICAL AGENT CHALLENGE AND CASUALTY LEVELS ON US NAVY SHIPS. REPORT CONTAINS BRIEF DESCRIPTIONS OF A DEPOSITION, VENTILATION, AND CASUALTY ASSESSMENT MODEL. THE DEPOSITION MODEL (DAWN (DEPOSITION AND WEATHERING ON NAVY SHIPS)) IS BASED ON NUSSE II (NON-UNIFORM SIMPLE SURFACE EVAPORATION MODEL, VERSION II) AND IS MODIFIED FOR AIRFLOW AROUND THE VESSEL. VENM (VENTILATION MODEL) REPRESENTS VARIOUS SHIP'S COMPARTMENTS AND AIRFLOW RATES. NURA (NAVY UNIT RESILIENCY ANALYSIS) IS BASED ON THE US ARMY'S AURA MODEL AND IS USED TO COMPUTE CASUALTIES AND UNIT EFFECTIVENESS. REPORT CONTAINS BRIEF DESCRIPTIONS OF MODEL OPERATIONS AND ALGORITHMS. NO DATA OR DETAILED MODEL DESCRIPTIONS ARE PRESENTED.

TITLE: CBR-D TACTICAL DECISION AID (DECAID) IDENTIFICATION AND ANALYSIS OF PREDICTIVE HUMAN PERFORMANCE MODELS AND DATA BASES FOR USE IN A COMMANDER'S CBR-D DECISION AID
DATA SOURCE NO: CBIAC-88-38
AUTHOR: RAMIREZ, T.L., RAYLE, M.E., TIJERINA, L., TREASTER, D.
ORIGINATING ORG: BATTELLE COLUMBUS DIVISION FOR U.S. NAVAL TRAINING SYSTEMS CENTER, ORLANDO, FLORIDA
CLASSIFICATION: UNCLASSIFIED/UNLIMITED
DOCUMENT DATE: 88/10/15

COMMENTS: BATTELLE, COLUMBUS IS IN THE PROCESS OF DEVELOPING THE HIGH-LEVEL FUNCTION SPECIFICATION FOR THE NAVY TRAINING SYSTEMS CENTER. THE PURPOSE OF THIS TRAINING SYSTEM IS TO PROVIDE NAVAL OFFICERS WITH TRAINING ON THE EFFECTIVE CONDUCT OF TACTICAL OPERATIONS UNDER CHEMICAL/BIOLOGICAL/RADIATION-DEFENSE CONDITIONS. ONE OF THE AREAS OF NEED WAS A REVIEW OF EXISTING MODELS AND DATA BASES WHICH MIGHT SUPPORT THE TRAINING SYSTEM SIMULATION. THIS DOCUMENT PROVIDES A REVIEW OF THE LITERATURE WITH AN INTENSIVE REVIEW OF THE FOLLOWING MODELS: HUMAN RELIABILITY, NURA, VENM, DAWN, TASK TIME MULTIPLIER, PDGRAM, TCORE, CWTSAR, NUSSE II, AND TSARDOSE. RECOMMENDATIONS ARE PROVIDED FOR A SOURCE/PATH/RECEIVER METHODOLOGY TO INCORPORATE THE MODELS. HUMAN PERFORMANCE AND MODELING ABSTRACTS ARE ALSO PROVIDED.

TITLE: THE THERMAL EFFECTS OF THE CHEMICAL DEFENSE ENSEMBLE ON HUMAN PERFORMANCE
DATA SOURCE NO: HSD-TR-88-015
AUTHOR: RAMIREZ, T.L., RAYLE, M.E., CROWLEY, P.A., DERRINGER, C.V.
ORIGINATING ORG: BATTELLE, COLUMBUS DIVISION FOR HUMAN SYSTEMS DIVISION, BROOKS AIR FORCE BASE, SAN ANTONIO, TX
CLASSIFICATION: UNCLASSIFIED/LIMITED
DOCUMENT DATE: 88/04/01

COMMENTS: THE OBJECTIVE OF THIS STUDY WAS TO PRESENT DETAILED INFORMATION OF THE EFFECTS OF THERMAL BURDEN ON INDIVIDUALS WEARING CHEMICAL DEFENSE ENSEMBLES. A LITERATURE REVIEW AND ANALYSIS INCLUDE THE FOLLOWING INDICATORS: PSYCHOLOGICAL, PHYSIOLOGICAL AND PSYCHOPHYSIOLOGICAL. OTHER AREAS INCLUDED IN THE REPORT ARE PREDICTIVE MODELING, CHEMICAL AGENT THREAT AND EVAPORATIVE COOLING. THE RESULTS PROVIDE DATA ON METEOROLOGICAL EFFECTS OF HEAT AND THE DEVELOPMENT OF A PRELIMINARY ASSESSMENT METHODOLOGY UTILIZING A THERMAL PHYSIOLOGICAL MODEL, TCORE. THE TCORE MODELING EFFORT SHOWED THE EFFECT OF VARIOUS INPUT VARIABLES ON THE PHYSIOLOGICAL INDICATOR OF CORE TEMPERATURE; A SENSITIVITY ANALYSIS ON THE EFFECTS OF RELATIVE HUMIDITY WAS ALSO PERFORMED.

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